

Executive IT-Report

"If you're offered a seat on a rocket ship, don't ask what seat."

co-op with the friends at marketing

App migration pitfalls when moving to the cloud

Riverbed: Create a centralized, dynamic view of the application's performance to give operational teams a single source of truth, accelerating troubleshooting and providing meaningful data for stakeholders throughout the enterprise.

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No one can speed in a Toyota Yaris

Here's something I don't get. Or, I do get it, but I think I've discovered something interesting to share.

When the question of algorithmic bias pops up, it's always some Caucasian, middle-aged, presumably above the average pay, man, that raises the issue. And... The issue is always on how non-Caucasian, both men and women, often are miscredited when being missed out in an AI facial scan, or how their behavioral patterns are yet not registered in a machine-learning fueled software. Ethics in AI is a buzz.

The thing is, that AI or machine learning algorithms are mostly designed by white men, and therefore all test-models derives from white faces, as well as middle-class behavioral patterns (my bias), where the white "norm" often stands as a sole example. I.e, when a traffic-speeding-camera gets a metallic BMW in a quiet suburban neighborhood, it violates the speeding limit by (just an example) 15 km/h.

Just thirty minutes earlier the same BMW got caught on the thoroughfare through Järfältet (a higher speedlimit road), and now speeding at an excess of 30 km/h.

The AI conclusion is of course that when people living at Järfältet exceed the speedlimit, they do it by double the amount as the well behaved people in the quiet suburb.

This is something that is often discussed predominately in U.S media, but sooner or later the issue will impact Scandinavia in one shape or another. Of course, race hasn't the same meaning here as it has in America, but the bias in the algorithm is still bias no matter if it impacts 1% or 100% of a population. And as you know, bias is always a sign of something being wrong, otherwise it would be called "normal", or not being mentioned at all.

So much for introductions, here's the thing, the purpose of most AI is to mitigate failure, collect proof against, or in other ways find and make a case for change, always from bad to better, seldom from good to better. AI tends to be a magnifying-glass used to solve crimes, rather than to prevent crime. So, when a biased AI machinery racks up the usual suspects, it should tend to be Caucasian, middle-aged, above average pay men that are the easiest and hence the first to be targeted, not the "biased because of lack of models". In other words, when we say bias (today), the practical meaning of it is something somewhat positive, for the group that the bias is said to miscredit. So, when the police starts to look for metallic BMW speeders, I would happily be biased against if the word carries the meaning it does today... But, what do I know, I drive a 15 year old Toyota Yaris, say no more...

Just a thought...

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Riverbed

App migration pitfalls when moving to the cloud

In today's digital world, technical and business leaders encounter several app migration challenges when moving enterprise workloads to a cloud environment.

An IT team's ability to quickly deliver value to the business through the cloud is contingent on successfully navigating the architectural complexities imposed by the cloud era.

Pitfall #1: Having an incomplete or outdated view of the infrastructure

Migrating an on-premises application to the cloud is a complex process. Most modern applications consist of multiple tiers and hundreds of micro-services, make calls to multiple databases, and may consist of components from several third parties.

Thoroughly understanding the current application's critical, hidden dependencies is a must. Otherwise, performance issues that impact the application or any of the associated services will almost certainly pop up. Unfortunately, many IT organizations lack an up-to-date view of their application architectures – often the result of sprawling islands of infrastructure and components that are constantly added, removed, or modified without clear documentation.

How to avoid this pitfall: Follow the best practices you followed during your data center consolidation efforts and apply them to your cloud migration project.

Leverage NPM flow monitoring software to streamline the planning phase, quickly get a complete, accurate view of your application landscape, and validate how app components communicate before starting the migration.

Pitfall #2: Network bandwidth and latency constraints aren't known or understood

Moving an application to the cloud significantly impacts two performance constraints: bandwidth and latency.

During and after the migration, bandwidth utilization increases and network links often become oversaturated, which can degrade the end-user experience. While the knee-jerk reaction here may be to buy more bandwidth, bigger pipes don't solve the inherent limitations of physics.

Secondly, in traditional network architectures, where the traffic is backhauled through a corporate data center for security or SLA reasons, cloud-based applications end up traveling a longer distance to reach users when compared to their on-premises equivalents. That means the time it takes to complete a transaction could drastically increase, due to the

increase in latency. As you can imagine, not understanding the impact on these two constraints before the migration takes place could leave you with disastrous results and poor end-user satisfaction.

How to avoid this pitfall: Start with a cloud app migration assessment to visualize and quantify these end-to-end constraints by testing critical application transactions. You can use what-if analysis tools to pinpoint where excessive time and bandwidth are being consumed within the infrastructure and identify areas for improvement.

Consider application acceleration solutions as an alternative to buying more bandwidth, which can reduce network utilization, accelerate applications, and increase transaction throughput.

Look for opportunities to take certain cloud-destined traffic direct to the Internet and eliminate additional hops between your users and the cloud.

Pitfall #3: Application, network, and security teams continue to operate in silos

All too often, separate IT teams only focus on their specific domains. But remember that cloud computing is driving many considerations for overhauling the enterprise architecture and, therefore, responsibilities become a blended effort. For example, consider troubleshooting and monitoring duties, where the network team may be tasked with detecting and fixing an issue, even if the problem stems from a SaaS application.

As a result, war room scenarios become more complex and include more teams from more locations responsible for different IT functions. So, when it comes to ensuring cloud migration success, bridging IT silos is crucial.

How to avoid this pitfall: Develop a cross-functional task force and take what's been successful in DevOps with regard to collaboration, agility, and instilling a culture of efficient responsibility and apply it to the cloud migration process.

Create a centralized, dynamic view of the application's performance to give operational teams a single source of truth, accelerating troubleshooting and providing meaningful data for stakeholders throughout the enterprise. ●

#App #Migration
#Cloud #SaaS
#InfraStructure

Validate how app components communicate before starting the migration.

When it comes to ensuring cloud migration success, bridging IT silos is crucial.

The most common challenges women face in negotiations

We use negotiations to help ourselves, our team members, and manage our work as we move towards our goals. How do women in general experience these everyday negotiations?

Small negotiations are woven through the fabric of our everyday working lives. Managers negotiate to secure resources for their teams, create new positions, or retain existing ones.

Employees negotiate to gain more flexible work arrangements, access development opportunities, or define new roles.

clarity on what you (or others) want is a disadvantage. Because of this, they stressed the need to develop core negotiation competencies, such as the ability to plan thoroughly and set goals beforehand. They also talked about the pitfalls of being too aggressive (or not aggressive enough), the challenge of recovering from negative feedback, and the importance of recognizing and taking advantage of opportunities to negotiate.

Based on these concerns, we identified three unique challenges women face during negotiations:

- Balancing self-advocacy and communality
- Managing difficult emotions
- Overcoming interpersonal resistance

Through our research, we have identified evidence-based recommendations to help women develop new skills and build the confidence and resilience you need to overcome them.

Challenge #1: Balancing self-advocacy and communality

The women we interviewed were often reluctant to self-advocate for their career advancement in negotiations. Many told us that just having the confidence to ask for more was challenging. Their reluctance may come from a well-founded fear that if they did ask, they would incur backlash. Research shows that women who initiate negotiations do come across as pushy, unlikeable, and undesirable team members, and the women in our study expressed their discomfort in creating this impression.

How can you overcome the challenge?

For women, effective self-advocacy requires a balancing act. They often need to come across as neither "too" assertive nor "too" caring. To achieve this balance, women are often advised to harness gender stereotypes by overtly displaying warmth and concern for others during negotiations. But this strategy can backfire when the woman appears overly accommodating, and in many cases, acting out of character can increase her stress and anxiety.

You will be more effective if you balance your displays of warmth and assertiveness during negotia- →

Women talked about negotiation as if it is a battlefield on which a lack of information or clarity on what you (or others) want is a disadvantage.

We interviewed 84 women about a significant negotiation that they had been through in the previous year. Our interviewees worked in metropolitan cities, primarily in large organizations with more than 500 employees, and most frequently in health (23%) or government (21%). The majority (81%) had an undergraduate qualification, and their ages ranged from 29 to 64 years. In their interviews, they told us what the negotiation was about, who they negotiated with, and how the negotiation affected their relationship with the other person.

Twenty-two of the women told us about their experience negotiating pay or promotions, but many also talked about the smaller negotiations with coworkers and managers that punctuate their workdays. Other than pay and promotion, the three most common kinds of negotiations were for:

Work resources: To gain support for a new position within the organization, restructure their team, change reporting lines, extend a handover period, or obtain a system upgrade

Professional development: To attend conferences, reduce work-days in order to study, or become involved in higher level executive meetings

Work-life balance: To adjust work arrangements, restructure a position to fit their family needs, return to work after maternity leave, or request phased retirement

To conclude the interviews, we asked each woman to describe a challenging moment in the negotiation, and around half of the respondents, what advice they would give to other women before a negotiation.

Many of the women talked about negotiation as if it is a battlefield on which a lack of information or

→ tions. We suggest you first show that you understand the needs of the other person, and then make a more assertive, self-advocating ask.

Open a negotiation by laying out the broader issue from the other perspective, or by showing how your ask will benefit both you and your team. For example, you might frame the ask for an additional staff member as a resource that will help your team perform more efficiently (rather than help you personally), or you might frame a salary increase as fair compensation given your contributions to the team (rather than as an individual want). A carefully worded ask will help you manage the tension between self-advocacy and communality.

Challenge #2: Managing difficult emotions

Negotiations can stir up a variety of emotions in many people, regardless of their gender. But in our study, a large number of women expressed feeling reluctant, anxious, and worried before starting a negotiation because they feared it might end poorly.

Our respondents spoke to the challenge of managing frustration, anger, and hurt during and after these conversations. One woman recalled a negotiation she had with her long-standing work partner. During their discussion, she encountered resistance and responded with anger. "When the negotiation didn't go well," she said, "I became angry. We got in a big fight, if you want to call it that." Because anger is the one emotion that women are not expected to express, she likely ended up doing more harm to the relationship than good. Another interviewee said the worst part about negotiating was becoming emotional during the conversation, and feeling hurt after. Several others discussed how failure at the end of a negotiation created negative emotions that blocked them from following up and making their asks again.

Drawing on their experiences, women identified the ability to distance themselves from their emotions as a necessary skill for being more effective. When giving advice, a few suggested that being less emotionally attached to a specific outcome, and adopting a task-orientation instead, might be the answer.

How can you overcome the challenge?

Before the negotiation, one strategy in particular can reduce anticipatory anxiety. Harness your stress and use it to your advantage through defensive pessimism, which is when someone experiencing anxiety lowers their expectations and invests their energy in simulating different ways an interaction could unfold. For example, if you assume that the negotiation will not unfold smoothly, you will be better prepared for any resistance you may encounter during it. As part of your preparation, ask yourself how and why the other negotiator might resist your ask and be ready to respond with additional information. Doing so will help you identify and prepare for the setbacks and challenges that could stand in the way

of agreement. The more you prepare, the less anxious you will feel.

During the negotiation, self-distancing is a helpful tool for managing in-the-moment emotions like anger, anxiety, or frustration. Because emotions like anxiety and anger come up when our core identities are threatened, they are easier to manage when we understand our triggers. Pause a negotiation and step back from the trigger event when you sense these feelings coming on. Take some space to reflect on the underlying reasons for your emotions and formulate a strategy to address them. Keeping an emotion diary to document the events that set off your feelings, or discussing them with a trusted colleague can help. Over time, you will be able to identify your triggers and act preemptively to manage them.

After the negotiation, try to avoid carrying negative emotions. Focus instead on how you will leverage your experience to be more effective next time. Record the positive capabilities and strengths that you have displayed in the face of challenges, and reflect on the moments you were most proud of during your interaction. The goal of this exercise is to identify how you benefited from the experience and how you can use your strengths to get the result you want in the future.

Challenge #3: Overcoming interpersonal resistance

Power plays, like questioning competence or dismissing ideas, are often used to influence or undermine others. These moves create resistance, making it more difficult for individuals to advance their goals in a negotiation.

During our interviews, women gave examples of resistance such as a manager missing a scheduled negotiation, showing horror and surprise at an ask, or being volatile and unpredictable in order to create uncertainty and pessimism. Such interactions were seen as aggressive, and intended to derail or stall negotiations, putting women on the back foot and discouraging them from effectively stating their needs.

We know that women face more resistance in negotiations than men, and building capacity to persist despite it emerged as a clear theme in our interviews. Many women stressed the importance of "regrouping and trying again" rather than viewing obstacles as failures.

How can you overcome the challenge?

Building grit is key. Recent research shows that successful people spend up to one and a half years negotiating and galvanizing support to reshape organizational policies and structures to meet their needs. This means that women will be more successful if they have the confidence to overcome obstacles and persist in the face of resistance. The ability to display flexibility and creativity is a critical first step. Stop framing setbacks as "show stoppers" that close the conversation, and start framing them as opportunities to learn more about your counterparts. → 7

Identify and prepare for the setbacks and challenges that could stand in the way of agreement.

BCS

The politics of ethics and sustainability

Technology that relies on an infrastructure of electronics and computation for its production and operation is continually on the increase and consequently we are presented with a dilemma: how to move forward when dealing with both continuing innovation and the ethical issues facing IT today.

Are the relevant questions being asked in the right environments in order to make this distinction between the opportunities and the threats.

The problem of sustainability is exacerbated by the proliferation of digital technologies. The rate of technological progress means that this year's models are obsolete by next year. Fashion is driven by technological advance and the issue of sustainability is not always considered in a market where the new and genuinely improved model can be offered every month by profit-driven manufacturers.

There are major issues concerning the handling, recycling and disposal of obsolete products and this is on the increase year after year. Health hazards from exposure to e-waste are causing major problems where chemicals get into and pollute the environment. Lead, mercury and cadmium are highly potent neurotoxins, and these are present in e-waste. Rather than continue as we are, strategies need to be established in order to deal with the essential issues of how to handle waste safely.

There is a need to highlight social issues, environmental impacts, power savings, energy efficiency and hazardous substances and pollutants. Consideration should be given to upgrades and new developments that instigate proportionate waste and know how to deal with it – to consider the life cycle and beyond.

With regard to the powering of the digital economy, energy demand is growing significantly with respect to the devices being used. Research has shown that currently, there is a decrease in end user devices but an increase in data-center usage. What effect will this have in the future?

How can we ensure that ethical and sustainable development takes place?

There have been significant improvements made for society in many areas, for example the increasing autonomy in the use of technology for individuals, as well as the development of data science, a new term developed with the increase in the use of 'big data'. Technologies that have improved medical research, providing invaluable data analytics in order to understand patterns, trends and behavior in many domains and consequently resulting in improving the quality of people's lives in many respects. New technologies are mainly contributing to the quality

of our lives, but it is the number of negative effects and the problems that they bring with them that should be acknowledged and addressed with a view to making any necessary changes in future practices.

With the volumes of data being generated by these new services, there will be vast amounts of data distributed over networks with no deep understanding of any possible detrimental outcomes; there will undoubtedly be new problems of ownership, sustainability, security and control whereby decisions will be made by proxy.

Making growth ecologically sustainable

To ensure that ethical and sustainable development takes place, it is essential to maintain dialogue between the innovators, creators and stakeholders. The ethical challenges and their impact on society are considerations that need to be an integral aspect of the design process, where an increase in communication and collaboration is needed between designers of technology, users, psychologists, sociologists, philosophers and health experts regarding the adoption of these technologies.

Societal needs and demands should be fulfilled whilst working within a framework for sustainable development. It is crucial to understand the human, social and ethical dimensions; sustainability needs to be included as part of the creative and developmental process. It is essential to raise awareness of sustainability and the issues that may affect ethical reasoning and impact on the decision-making process with regard to these technologies. The only foreseeable rational route is for professionals to address practical ethics within their own field of work to avoid these issues and problems with innovation and development.

Are the relevant questions being asked in the right environments in order to make this distinction between the opportunities and the threats, and who is making the decisions?

New developments governance and enforcements

This progression of technological development over the span of twenty years or so indicates a new indu- →

→ industrial revolution having a major impact on every industry and society. It shows the progression to real time systems being accessible anywhere, and with the IoT physical and digital convergence leading to man-machine collaboration.

With the developments in AI, there are increasing ethical considerations to be acknowledged. The increase in AI systems will undoubtedly bring many useful innovations and improvements to our lives – however, systems engineers must heed warnings from the past and look to social responsibility and sustainability in the decision-making for future developments.

Are there codes of conduct, codes of practice and codes of ethics to address all the specific kinds of situations that may arise with the development of digital technologies? Are they adequately acknowledged, understood and enforced? Responsibility must be taken by developers for the technology they produce; to consider the ethical considerations that have to be acknowledged and the possible effects and unintended outcomes that might occur on people and society.

A new era of accountability

There is also the question of where the responsibility for brokering agreement on sustainability issues lies. A consensus can only be reached when all professionals participate in negotiations and accept their outcomes.

Irreversible problems and situations are becoming greater challenges, resulting in negative outcomes in some cases. Enforced governance of policies, procedures and guidelines need to be introduced to provide instant and effective awareness of these issues to be discussed in the requirements for any new developments in the field. We need to be more conscious of litigation with regards to the global market and that socially responsible computing incorporates iss-

ues of accountability, liability, integrity, and trust, as well as the ability to be able to measure and manage an infrastructure to support energy efficiency.

What appears to be overlooked and essential, is the lack of action that is needed to take forward new policies in providing relevant and up-to-date governance and enforced standards.

Facing our future challenges

Teaching, working, living and the environment have experienced many transformations making many improvements and changes to a world where everything has become a network of networks. This rapid advance in technology will bring many more complex issues and indeed the essential requirement for ethical considerations of which there will be many arising especially with human machine symbiosis.

For the legacy of future generations, sustainable growth paradigms need to be developed. Innovation in technological developments needs to continue, but with emphasis on considering future consequences and to change the culture of ‘this does not concern us.’ It is essential to address issues of effective recycling and reusability of products.

The current situation is that it is an increasingly technologically experimental age with many new complex digital technologies influencing society. Technology tends to be driven by finance and trend rather than ‘improving the quality of our lives’ as the primary goal.

It is important to consider the motivation behind technological development, balancing benefits versus cost, and thinking beyond the present time and into the future – to what the possible ultimate outcomes will be as a result of this advancing technology.

The good life may not be the good life envisaged if the planet is impoverished by demands. ●

#TechEthics #Ethics #Purpose

Technology tends to be driven by finance and trend rather than “improving the quality of our lives”.

7→ Ask “why” or “why not” more often. Every setback gives you knowledge about the forms of resistance you can expect in the future, and from whom. Use this information to develop a repertoire of constructive responses to resistance.

We identified two broad themes from our interviews. The first theme addressed women’s need to boost their confidence by strengthening their core negotiation skills. The second theme, which we focused on, addressed challenges unique to women.

These challenges acknowledge that women and men experience negotiations differently. They also show just how much gender stereotypes underpin women’s experiences, both in how they perceive negotiations and are perceived as negotiators. Remember, though, they are not insurmountable. With careful planning, you can learn to better manage your emotions, come to the table resistance-ready, and actually get what you want. ●

#Equality #Gender #Bias

AI and the transformation of government

AI technologies are set to transform the way that governments deliver public services.

Virtual assistants that answer citizen queries; sentiment analysis systems that track public reactions to government policies; tools that can automatically sort vast numbers of government files by topic; and facial recognition software that the police can use to identify those with outstanding arrest warrants, are all examples of AI technologies currently used to try and make governments more efficient and more responsive to citizens' needs all over the world.

One key area of AI in which governments are showing increasing interest is predictive analytics – the use of AI to predict future outcomes based on historical observations. Computers can trawl through vast amounts of data to find hidden patterns, identifying links between particular factors and increased likelihood of a particular outcome – for example, a crime occurring, or a patient in a hospital responding to treatment. Making more comprehensive and more accurate predictions is a worthy goal for public servants to have, but some research suggests that predictive analytics might unfairly target poor and vulnerable citizens, because of biases in the available data on which these new tools are trained and deployed.

Algorithmic bias

As AI becomes an ever-increasing presence in our lives, the issue of bias or unfairness in these new technologies is attracting more public attention. The stakes are especially high when governments could end up using technologies that perpetuate existing social inequalities. The powers that the government wield over its citizens (powers like the right to arrest someone and deprive them of their liberty, or the right to take away someone's child) mean that when governments use tools that are unfair – such as facial recognition tools that are more likely to misidentify black faces – the consequences for citizens can be severe. The issue of algorithmic fairness is critical in the future of public services.

It is therefore concerning that the discrepancy between the data that governments have from poorer citizens compared to wealthier ones affects the fairness of predictive analytics. This bias can occur in two ways.

Firstly, tools trained on historical data that over-represents poor people is likely to make predictions that are skewed. In her book on the future of AI in society, mathematician Hannah Fry highlights

how algorithms developed for predictive policing can end up targeting particular areas in a self-reinforcing loop. If certain (often poor, and often majority-BME) neighborhoods are flagged as high risk of crime due to being historically overrepresented in the data on previous crimes (whether due to a genuine increased risk of crime, discriminatory over-policing of poor people and people of color, or a combination of the two), then the police will send more officers to these areas. An increased police presence is likely to lead to officers identifying more crime in that area – meaning that the initial inequality only gets further entrenched when the system receives new data that marks these neighborhoods as even riskier than before. This is one way in which AI systems can end up targeting poor people unfairly due to discrepancies in the underlying data.

The second problem is that, when predictive models are applied, poor people are more likely to be flagged for certain risk factors if the government has more data on poorer citizens. For example, the government has data on citizens who have accessed public treatment for addiction, but none for those accessing private treatment.

Middle-class families reach out for support all the time: to therapists, private drug and alcohol rehabilitation, nannies, babysitters, afterschool programs, summer camps, tutors, and family doctors. But because it is all privately funded, none of those requests ends up in the government Big Data pool. The same willingness to reach out for support by poor and working-class families, because they are asking for public resources, labels them to their children in the predictive model.

In this way, even when a model has outlined a reasonable predictive pattern (such as a link between drug addiction and child neglect), it does not treat all cases equally. Poor individuals are more likely to be targeted (and also more likely to be targeted after reaching out for treatment, when they are likely trying to do better for themselves and their child) than wealthy individuals.

Better data or better data rights?

The problem with algorithmic bias in these cases of predictive analytics is – as in almost all cases – a problem of the underlying data that models can work with. → 11

The issue of algorithmic fairness is critical in the future of public services.

If one group gets over- or under-represented in the data, the algorithm will end up being biased.

Spiceworks

For the tech-marketer/sales

In a nutshell, today shows a healthy global economy, aging technology in the workplace, and more sophisticated security threats that has IT spending up year-over-year. What does that mean for you? More IT spend means more opportunities for tech brands to engage tech buyers, support their needs, and ultimately acquire new customers!

We will break down three focus areas that can help you reach in-market buyers with greater impact:

- The rise of emerging technologies
- Growing security concerns
- Data-driven activations

Embrace emerging technology with an impactful point-of-view

As IT budgets rise, emerging technologies are seeing steep increases in adoption and consideration. Even if you don't directly offer an emerging technology solution like hyperconverged infrastructure, edge computing, or AI-powered technology, chances are your technology either supports, impacts, or perceivably impedes its effectiveness.

This arena can get tricky because many of the applications are complex and difficult to understand from the B2B tech buyer's perspective, so consider the longer sales lifecycle and level of education involved. This means understanding the nuances of the path-to-purchase. We know that 17 pieces of content typically need to be consumed for a solution that requires extensive education. In other words, you need to be armed with a lot of impactful content to educate buyers about the current and future state of emerging technologies and the use cases in the workplace.

But don't forget to be human! It's important to be helpful and consultative in your content, but ensure your customers (prospective or existing) know there are humans behind your brand. Talk about the impact of emerging technology to the business world and get excited about it – featuring technical product experts or Subject Matter Experts (SMEs) in your content can help with this. 25% of B2B tech buyers want to hear directly from SMEs like solutions architects when they're looking to purchase new technology.

Fast facts:

- Adoption of AI technology is expected to triple by 2021, while adoption of hyperconverged infrastructure, edge computing, and serverless computing is expected to double.

- Large enterprises (5,000+ employees) are adopting emerging technologies up to 5 times faster than small businesses. For example, 31% of large enterprises have adopted blockchain technology compared to 6% of small businesses.

- Two-thirds of large enterprises plan to deploy 5G technology by 2021.

Focus on security and bring threats to life without scare tactics

Security is an obligatory subject to stay informed on for B2B tech buyers and now a ubiquitous item of concern that needs to be addressed in almost every technology conversation. This is an opportunity for savvy marketers to incorporate it in the right ways – with deep expertise and specificity for the problem or opportunity your technology addresses. Whether it's a PC, server, or the unknowns that come along with emerging technologies in the workplace, security needs to be addressed.

Want to break through clutter? One of the most effective ways to market the security angle is with benchmarking and assessments. Anything that helps B2B tech buyers identify their vulnerabilities will get their attention. But be careful not to fall flat on substance – conducting research to support your claims is critical. If you don't sound credible, you may risk losing potential customers.

Fast facts:

- Growing security concerns is the number two driver of IT budget increases in 2020.
- One in four enterprises (1,000+ employees) are increasing 2020 IT spend due to a recent security incident.
- 30% of B2B tech buyers believe security assessments (e.g. how at risk are you?) are among the most valuable information when considering new security solutions.

Use intent data to activate your campaigns

Marketing is a science as much as it is an art. → 13

25% of B2B tech buyers want to hear directly from SMEs like solutions architects when they're looking to purchase new technology.

Anything that helps B2B tech buyers identify their vulnerabilities will get their attention.

You must plant seeds where they're most likely to grow.

Aberdeen

Source of the need for speed in analytics

Programmers are always searching for new ways to access larger volumes of data with greater speed and ease. This innovation in the business intelligence (BI) space is becoming more and more necessary with analytics users facing diminishing decision windows, which demand faster decision making.

69% of analytics users indicate their decision window has shortened substantially or noticeably in the past two years. To make quicker decisions and meet these growing time-crunches, individuals need data at a rapidly increasing rate. In fact, 70% of analytics users need information to be available within the hour or sooner. So how are businesses rising to meet these demands for faster decision making? The answer is AI.

Incorporating AI into analytics technology creates a blended form of analytics often referred to as augmented analytics. This modern tech can impact the speed, ease, trust, and satisfaction with data. As this new model for analytics influences a variety of areas, we can narrow our focus to highlight exactly how augmented analytics is affecting reactions to the diminishing decision window.

The diminishing decision window

With the time to make decisions shortening for many data users, augmented analytics is more important than ever. It has a direct impact on the speed of decision making, as well as the ability to access data within the given decision window.

With improvements in speed, those using augmented analytics can make decisions in a timely

manner. This newfound efficiency for these companies is affecting how analytics professionals view their organization's business intelligence capabilities.

Augmented analytics boosts employee satisfaction

A secondary result from incorporating augmented analytics is employee satisfaction, which stems from the ability to make decisions efficiently and effectively. The use of augmented analytics is associated with higher satisfaction ratings with aspects of business intelligence capabilities.

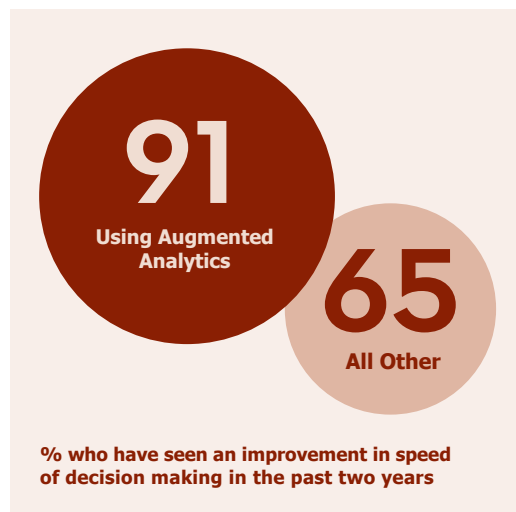
Those with augmented analytics capabilities are more satisfied with their ability to access data to support decisions, which aligns with previously described impacts this new form of analytics has on opinions regarding the diminishing decision window.

Augmented analytics users also indicate they are more satisfied with the ease of use, relevance, and sophistication of their BI tools.

Higher satisfaction ratings among your employees can lead to increases in retention. Indeed, those using augmented analytics see a 23% year over year increase on average in employee retention while other companies only see 17%. Therefore, improving the power of your analytics with AI capabilities has a positive influence on your workforce as a whole.

70% of analytics users need information to be available within the hour or sooner.

Augmented analytics is more important than ever.



→ If you're feeling overwhelmed and crunched for time with decision making, it may be time to invest in augmented analytics. There are plenty of other methods for elevating your analytics game in addition to AI. Dashboards, automated reporting, interactive data visualization tools, and IoT integrations all have positive associations with business impact. There are two main groups affected by these new changes in analytics technology: people in non-traditional data roles, who will be able to find and understand data, and data professionals, who will be able to better

manipulate, visualize, and access data.

By providing data users with an easy, fast, sophisticated platform for data access and analysis, augmented analytics not only alleviates the stress of the diminishing decision window, but also improves employee satisfaction and retention.

Looking to the future where the decision window is essentially non-existent, augmented analytics could be the key to diminishing stress levels into non-existence as well. ●

#AI #BI #AugmentedAnalytics #Analytics

8→ If one group gets over- or under-represented in the data, the algorithm will end up being biased.

The racial bias that has been observed in facial recognition software, for example, is largely due to training data that contains far more pictures of white than non-white people. Another example would be the automatic CV screening tool that Amazon allegedly had to pull because it was biased against women. The system was trained on the people previously hired by the company – which, due to sexist perceptions about the role of women in tech – tended to be men.

However, what makes this predictive analytics case especially challenging is that the solution to the data problem is less straightforward than in these other cases of AI unfairness. The proposed technical fix in these other cases is to go out and collect more data from underrepresented minorities or marginalized groups, in order to make the dataset more diverse. However, the government often cannot go and collect more data from wealthier citizens to fix biased predictive tools, especially when the data it has on poorer citizens is so intrusive. Most people would refuse to surrender the information that they are having sex for money, or that they suffer from a drug addiction, usually out of a legitimate concern for their privacy. The reluctance of wealthier citizens to share this kind of information with the government raises questions about whether it is right to gather such intrusive data about poor and vulnerable citizens in the first place, let alone extend the collection of this data to encompass the entire population.

This leaves governments in a tricky position – predictive analytics presents an unparalleled opportunity to improve many public services, but in its current form may be biased. The solution to balancing the need for fairness with the drive to make governments better at helping citizens might, in this case, not be better datasets, but better *data rights* – and especially better data rights for those often least able to advocate for them.

The movement for data rights has grown stronger in recent years, and legislation such as the EU's GDPR aim to enshrine individuals' data rights in law. It is essential that we recognize how access to

these rights could be threatened by certain kinds of disadvantage. For example, the GDPR does set a high bar for consent, and also advises that public authorities should avoid making consent to the processing of personal data a precondition of a service

However, in practice, this recommendation will have to contend with deep-rooted cultures of suspicion of welfare recipients, that pushes governments to collect as much data as possible in order to minimize possible fraudulent claims. The GDPR also enshrines rights to erasure of personal data (also known as 'the right to be forgotten'), but allows latitude for governments to apply certain 'reasonable' requirements such as an administrative fee to process the request if it will be onerous to complete, as well as proof of identification. These requirements could be barriers to the most vulnerable citizens lobbying for the erasure of their sensitive data, leaving them with digital shadow that could follow them for years (if not for life).

In many cases, the incentives to improve predictive analytics and the incentives to improve data rights for everyone will conflict. If poorer citizens gain better access to and understanding of their rights, governments may not be able to collect data on as broad and intrusive a scale. This will necessarily limit the scope of predictive analytics – and this may well mean that in some cases we catch fewer criminals, or detect fewer cases of child abuse.

However, we must ask ourselves – what price, as a society, are we willing to pay for better prediction? After all, one way to reduce crime would be to imprison arrested on suspicion of a crime, and one way to reduce child abuse would be to take away all children from parents that are suspected of abuse. The fact that we do not take this approach is evidence of the value we place on fairness – we are willing to risk some criminals or abusers going free so that innocent people are not unjustly imprisoned or do not wrongly have their child taken away from them. Sacrificing the rights of disadvantaged people for the sake of 'better predictive analytics would do a disservice to this existing commitment to fairness and justice. ●

**#AI #GDPR #Ethics #AIEthics
#AIBias #AlgorithmicBias**

What price, as a society, are we willing to pay for better prediction?

Tech Beacon

How to get started with RPA: 5 projects to consider

As organizations increasingly ramp up their plans to pilot and phase in rollouts of new Robotic Process Automation (RPA) projects, many enterprise leaders are on the hunt for the best use cases to get started with RPA.

72% of organizations plan to either embark on or fully commit to their RPA journey by next year. As newbies seek to prove the viability of RPA for their organizations, they should seek out RPA-ripe candidates with five defining features.

Automate simpler tasks first.

There could be a lot of candidate processes for RPA, but the best candidate tasks have stable processes, repetitive tasks, and very clear steps, and they are well structured and well documented. Automate simpler tasks first.

Repetitive tasks are easy ways to dip your toe in the water with RPA.

Here are some common use cases that fit that mold, making them great candidates for starter RPA projects:

Swivel-chair processes. These are tasks where humans essentially respond to alerts or prompts from one system, then take some of the data and take action in another system. Not only is system- or function-switching fundamental here, but it's done in a repetitive, repeatable fashion.

Finance projects. Experts universally agree that finance is usually the first business function in which to start looking for beginner projects.

Within finance there are a lot of 'swivel chair' activities. One example is collecting data from your operations systems, such as the number of cases worked for a client, and then entering that same data into an invoicing system.

There's no need for double entry. With RPA the process of reading data from operations and entering it into invoicing can be automated. These repetitive tasks are easy ways to dip your toe in the water with RPA.

Another example might be in procure-to-pay, such as processing inbound invoices, reconciling invoices, and issuing payments.

These are all repetitive tasks, and a safe environment in which to start with RPA because they won't directly touch customers or revenue generation activity but still fill an important need.

Employee onboarding

Experts say that aside from finance, HR stands as another universal business function that's full of use cases for RPA beginners. One of the most obvious

areas is the employee onboarding process, which usually involves a very defined process that requires a structured set of information that must be entered into different systems, documents that must be scanned, and so on.

Take, for example, a firm that requires new employees go to HR to fill out a bunch of forms, submit documents, and receive employee handbooks or other information. This not only requires the employee to be tied up in the process, but also usually needs an HR person to shepherd the process and ultimately input the information, initiate new accounts for the employee, and so on.

That process could greatly be aided by either a kiosk or an online mechanism that scans documents and receives soft-copy inputs into a system that then uses RPA bots to automatically do the back-end work to route information to the correct corporate systems, initiate provisioning of new accounts, build access badges, and send out relevant new employee information to the person based on the information received and the role they're filling. Otherwise, there is a dedicated HR person who sits and does all of that.

Workforce management

Beyond onboarding, organizations could also look at other elements of workforce management and employee interactions with HR for other potential RPA starter projects. When it comes to HR use cases, there are generally two sides of the coin: Back office and front office.

Back-office automation includes not only processing onboarding information, but also things like payroll management and staffing coordination.

Similarly, this area could also include reimbursement claims approval processes, which can eat up a significant amount of time. Many firms have staff eyeball employee scans of receipts and ensure that the totals match up in order to approve the claim.

Now the bot can do that by doing an optical character recognition scan, and for many of the receipts if there is a clean match it can give approval instantly. And then if you still need to do a physical approval because the bill is smudged or not clear in nature you can review those exceptions.



→ Making employees happier

The opportunity for workforce management projects doesn't just have to be on the back end. The other side of the RPA workforce management coin is with front-office interactions, which may offer even greater value because they provide an opportunity to improve the employee experience.

If somebody is calling HR to say, 'I worked eight hours but you credited me for seven hours, or, 'I took a day off and it shows medical leave but it was something else,' RPA could offer a way to get their questions answered in a more seamless and efficient way.

A lot of times you have these silly things where it takes forever to apply for leave, or get payroll issues sorted out, and that causes frustration among employees.

Using chatbots and other RPA mechanisms, companies can automate the usual 80/20 rule, so that the 80% of questions that are repeated on a daily basis can be answered instantly. Not only does this save time, but it will hopefully track back to measurements for the happiness of the employee base.

IT processes

The IT team could also stand to look in the mirror to find inefficiencies in its own processes, such as in IT service management, that could provide beneficial pilots and early projects to flex its RPA skills. Areas of IT that could potentially be streamlined through RPA include server and application monitoring, routine maintenance and systems monitoring, batch processing, email processing and distribution, backup and restoration, and password resets.

That last one in particular offers a clue as to the depth of opportunity for RPA projects to help smooth a lot of the system-to-human bottlenecks in the IT Service Management (ITSM) space.

Projects that don't make sense for RPA

As organizations survey the field for the perfect first projects to get their feet wet with RPA, they should definitely be discerning about use case candidates right out of the gate. These early projects will set the tenor for RPA across the organization and an early fail could stymie automation efforts later on down the road. And there are definitely areas where RPA is not well-suited.

One good litmus test for figuring out projects that don't make sense for RPA is to look for workflows that involve a lot of unstructured data. RPA is best suited for processes that uses structured data with clearly defined values, such as spreadsheets, tables, and the like. Unstructured data such as documents, free-form text, and images that need interpretation are a lot trickier.

Unstructured data requires some level of cognitive ability to interpret—and that makes up over 85% of the data in most enterprises today. In areas like legal and compliance, sales and support, and finance and operations, this type of data is the foundation of almost every mission-critical business process.

In these cases, it may make sense to take a light touch with RPA to avoid problems. ●

**#RPA #Chatbot #AI #MachineLearning
#ML #NLP**

RPA is best suited for processes that uses structured data with clearly defined values, such as spreadsheets, tables, and the like.

9 → You must plant seeds where they're most likely to grow, nurture that growth, and then fill your proverbial belly with quality prospective customers. There's a ton of low-hanging-fruit ready for harvest right now, and it's okay to be a glutton.

The ability to influence the sales lifecycle is better enabled now than ever before. You can now access other sources of first-party data to create omni-channel nurture programs. No longer do you need to rely on email and building your own priority list of targets. Think about the data world around you and get

fat on the low-hanging fruit (i.e., intent data!).

Believe it or not, B2B tech buyers actually want to hear from you – as long as your message is relevant and timely. In fact, the most commonly used channel when in-market tech buyers are seeking information for a purchase is your company website. They're also seeking content in forums, review sites, and industry publications. ●

**#ITSales #Sales
#Marketing
#Content**

Industrial Internet Consortium

Push your machine to the edge

Harnessing machine analytics via edge devices may be the industry's answer to monitoring and collecting data in a secure manner. Industry 4.0 and the Industrial Internet of Things (IIoT) have become mainstay terms in manufacturing, but will they become more than buzz words to the packaging and processing industries?

Specifically, OEMs can harness IIoT-enabled technology like edge analytics – in which machine data is automatically collected and analyzed at a sensor or other connected device – to help improve Overall Equipment Effectiveness (OEE), which end users are demanding. Edge analytics, which provides real-time information on machine status, could also open the door to new business models, like Machine-as-a-Service (MaaS), which can ensure customers aren't spending a dime more than what's being delivered by their capital equipment.

At first glance, the biggest benefit of edge analytics is the ability to bypass sending data to the cloud, which poses IT security risks. However, there often is a cloud component to the edge if the end user wants the OEM to manage the data. As a result, the same obstacles OEMs encounter when providing predictive maintenance, data analysis, and remote monitoring services, also plague edge analytics, as each obstacle points to one common pain point: the cloud – which the edge relies on to make the most impact.

But, it's the ability to capture and act on machine data immediately that is the true value of the edge. And there are ways that machine builders can tap into the power of edge analytics now to improve their equipment, OEE, and customer relationships. Then OEMs need to figure out how to sell the benefits of the edge and the cloud combined to their customers to unlock the opportunities for new business models and critical failure prevention.

Defining edge

Edge computing happens when machine analytics are gathered or analyzed on the network or near the source of data, typically via an HMI or PLC connected to the equipment.

To effectively deploy edge analytics, a machine builder would need to invest in edge computing technologies such as software applications to process and display data, and cloud services like Azure, Amazon AWS, or Google Cloud to house the data – if it will be exported from the machine.

An OEM will also need to either retrofit its legacy equipment or build its new equipment to include sensors, HMIs, PLCs, and other components that connect, communicate, and provide data. Machine

builders can also seek out third party IoT service providers for advice and consultation on adding an edge computing feature to its equipment, as well as the automation and component suppliers they currently work with.

Once all systems are in place, components can start communicating analytics in real-time, which can either be stored on an edge device in a customer's facility or exported to the cloud for Big Data analysis or additional storage. In order to be compatible with the edge, devices need to support edge-computing capabilities, such as local computing and storage and communication.

When paired with the cloud, AI, and machine learning, machine builders have the potential to virtually eliminate downtime, skyrocket OEE, and create new business models and revenue streams.

Benefits on the edge

Whether machine builders gather edge analytics on a monthly or yearly basis, or they are able to build and deploy architectures and systems that allow them to collect insights in real-time, gathering analytics can help OEMs understand their equipment better, which helps all parties.

OEMs can take it a step further and pair the edge with machine learning algorithms, a data analysis method – which is a subset of AI – that automates analytical model building which can teach systems to identify patterns and make decisions to improve production or address a specific business problem. These analytical models are complex and require months of data to train and re-train. This process also requires regular data feeds from operating components, as well as a public or private cloud connection at the top of the edge continuum, to compute the data.

But machine learning models also allow machine builders to "fix" production flaws with little to no human involvement. Algorithms and production resolutions can also be quickly deployed directly at the edge to mitigate cloud latency.

Edge analytics keeps machine data local which protects intellectual property.

There are different industries where data connectivity to external data networks, such as the cloud, are a security concern. Edge computing is actually your emerging defense for security because you iso-

Edge computing happens when machine analytics are gathered or analyzed on the network or near the source of data.

late the data and cut out risk of malicious attacks. It is self-contained software that runs offline, yet still provides insight into your machine.

What's the hang up?

While the benefits of edge analytics could change the way builders and end users operate, there are limitations and concerns that could curtail effective and thorough adoption of the technology.

Embarking on new IIoT initiatives such as harnessing edge analytics from equipment can be cumbersome, but partnering with IIoT service providers or current control and component suppliers can make a difference.

As mentioned, connectivity to the cloud unlocks the full potential of edge. But winning that end user buy-in is hard. It could be easier if a machine builder can demonstrate that the benefits outweigh the risks.

You could develop an incentivized-based program to make it worth the end user's while to share machine data in real-time with machine builders.

If the OEM can say, 'If you give us access to this data, here is what you will get in return,' and demonstrate that they can provide an outcome if they get access to the data, it will be critical.

Without the cloud, accessing edge analytics in the most secure and acceptable fashion would require a machine builder to travel to the customer's plant to pull the data from the source. This could obviously be a costly move, and would only allow the machine builder to collect months or weeks of data at once, instead of having insight into real-time data at any time. However, this collection method could still be very impactful.

But companies could also solve this by using the edge and pairing that with occasional imports to the cloud when necessary, and if permitted. How do you get your application and data onto and off of your equipment? Do you take a USB stick and go to every one? That's not very efficient.

With Siemens Industrial Edge, the machine and edge devices could be running, not connected to any cloud system, and maybe it runs for a couple of weeks or months. But you may reconnect to the cloud if there is a software update for the devices or you need to gather data, and then pull the cord to the cloud connection once finished.

Should a machine builder clear the hurdles of IT security concerns associated with exporting data, and decide to monitor edge analytics, an OEM must ask: Who is going to develop, monitor, and manage this new project and process?

Machine learning and AI could allow a builder to change the way their equipment is running on the fly – should there be an operational flaw in the production line. But to do this, OEMs would need to de-

velop and deploy algorithms based on the machine data they collect that would automatically recognize pending system failures to adjust equipment.

Embarking on an edge journey

Gathering edge analytics may not be practical for every packaging line or application, but it could stand to alleviate OEE and productivity pain points with end users.

One way machine builders can see if edge analytics could be practical for their business is to ask themselves if any of their machines or applications require, or could greatly benefit from, having immediate response horizons, or an action a machine or component needs to take once a trigger has been hit.

It's all about determining your response horizons. If you think of a car, it has a lot of real-time answers, telling you the status of a gas gauge, oil pressures, engine temperature, and other parameters that have a long response time. If your check oil light comes on, you know you have a few days to get it changed. But the sensors used when it's time to deploy the airbag don't have a long response horizon, so that is something you want handled on the edge [in order to] respond immediately. Machines using edge analytics could also have applications that require immediate changes.

While the concept of edge may seem overwhelming to some, machine builders have been using edge for quite some time.

If you look at Proportional-Integral-Derivative controller (PID) loops and condition-based monitoring, you'll see that we are just taking what we have been doing for the past two decades and changing how we code, implement, and deploy it. There is a higher level that can be done today in a controller and at the edge, which allows us to do higher level analytics for those very narrow, short times where we have response horizons in milliseconds. What used to have to be done offline, we can now do online. We don't have to wait until the outcome happens, we can do something before it happens.

Consider these factors to decide whether or not edge analytics are practical for your business:

- Determine which applications edge analytics would lend itself well to
- Find out what the PLC or HMI currently in use can or cannot do in terms of edge analytics
- Designate response horizons and parameters for equipment and components
- See if manufacturing customers would be open to providing access to edge analytics, or a connection to the cloud
- Determine which issues could be solved by harnessing edge analytics •

#EdgeAnalytics
#RealtimeAnalysis
#ResponseTime

OEMs would need to develop and deploy algorithms based on the machine data they collect that would automatically recognize pending system failures to adjust equipment.

Designate response horizons and parameters for equipment and components

Tech Beacon

QA pros can lead quality-driven development in a DevSecOps world

As companies strengthen their DevSecOps practices, there's a pressing need for quality-driven leaders to drive "shift left" testing. Your entire organization benefits from having testers involved earlier in the development process.

You can have a quality product only if the feature provides value to the end user.

The Definition Of Done (DoD).

Value is subjective to your company goals, product, and people.

There are other advantages, too. Test teams gain a better understanding of the full system under test and participate in improving user stories and design. Automation developers get the time they need to stay on pace with application development, and test cases are more thorough.

Even so, these activities traditionally require a dependency on upstream deliverables that keep testers in a "follow" mode instead of allowing them to lead.

Share your test strategy

You can have a quality product only if the feature provides value to the end user. Product owners have the challenging role of understanding the voice of the customer and turning those ideas into testable, small, independent user stories. They may not scream for it, but they can use the help of a QA professional who shares the mission of deriving high value from each feature.

As defined in Acceptance Test-Driven Development (ATDD), the development of acceptance criteria should be a team activity in which the tester adds a unique perspective. Expanding acceptance to cover essential conditions will only help developers build the right product the first time.

Define quality in your definition of 'done'

Depending on your organization's agile maturity, the execution of the definition of "done" could range from "does not exist" to "religiously followed." The Definition Of Done (DoD) is just another quality control. The tester should promote continuous improvement of the DoD, especially if the list is stagnant.

For example, you shouldn't have metrics such as a 90% functional test pass rate that exists for years. This number should increase and decrease as the organization learns what works.

When the DoD is developed by leaders without validating the feasibility of enforcement, there are bound to be problems.

As a hero for quality, use these opportunities to create and promote the prioritization of stories for your technical debt that make DoD controls easier for the team to accomplish.

If there is a long backlog of technical debt, start the DoD with minimal viable criteria as opposed to building a full wish list of controls that are not feasible within a sprint.

For the more mature teams that are meeting DoD criteria consistently, begin to add the definition of "secure" for your DevOps into the DoD list at a pace that is realistic to accomplish.

Measure, measure, measure

Most tech organizations are likely to link their product delivery challenges to the lack of technical expertise or resources. However, experience shows that the root cause of the low return on technology investment often lies in the inability to manage enterprise change from both an organizational and strategic perspective.

Metrics are foundational to the continuous improvement of your DevOps practices. They provide exposure to team performance, including successes, blockages, and inefficiencies.

Testers have a significant role to play in collecting and advocating for the collection of some key metrics that can add value and help to inform the organization's DevOps efforts. Value is subjective to your company goals, product, and people.

Key metrics to collect

Here are some important metrics that testers should advocate collecting:

- Direct user feedback, capturing satisfaction and engagement of real users (hard to collect, but high value)
- The velocity of story delivery (easy to collect, medium value)
- Code coverage (easy to collect, medium value)

- Number of defects reported by manual QA (easy to collect, medium value)
- Number of defects reported by automation (medium difficulty, high value)
- The velocity of releases (easy to collect, medium value)
- Number of customer-reported defects (hard to collect, high value)
- Costs of delivery (hard to collect, high value)
- Team satisfaction (medium difficulty, high value)

The ease of tracking or managing these measures very much depends on your organization's infrastructure and collection systems. If you're not sure where to begin, a good start could be to collaborate with your team to select a starter list of measures.

You can then create technical debt stories to define initial benchmark collection criteria and decide on how to simplify the ongoing tracking. By iteratively increasing the measures tracked, you can use them to drive healthy competitions and analysis in retrospectives.

Small steps, big impact

Regardless of where you are on your DevSecOps journey, these are easy-to-implement steps that require minimal effort but will have a significant impact on product delivery.

If you're a test expert reading this and would like to be more integral to any DevOps transformation process, start small. Speak with your product manager about helping translate end-user goals to acceptance criteria to ensure that no critical features are missed. As a tester, paying great attention to details is a part of your DNA and can be a great asset in the initial stages of product development.

Don't hesitate to share your test strategy. If developers and testers are aligned on what the quality of the end product should look like, it reduces the

likelihood that there will be a bunch of inconsistencies and rework for both parties.

Consider the DoD as another area where QA has an opportunity to add significant value. DoDs are essentially another method of quality control. Testers should be the promoters of clear, doable, and continuously improved DoDs that will improve the accuracy and efficiency of the delivery process.

Take the lead

Being able to think through the effects of decisions and particular initiatives is a critical element in the process of delivering great products that users love and value. Testers are almost hardwired as a part of their job function to think through how different actions will result in different outcomes.

When it is translated into the collection of metrics, this area of expertise can prove indispensable to the company's overall initiative to improve its software delivery process. In an ideal process, understanding how important metrics such as customer feedback will be collected should precede the development of any product. Testers should advocate for the continuous collection and use of data to inform project and strategic decisions. ●

#DevOps
#DevSecOps
#Benchmark
#KPI

■ A good start could be to collaborate with your team to select a starter list of measures.

Ixia

Steps to optimize defensive security

Amongst the many security strategies available to security architects, a defensive approach is one fundamental strategy that stands out. The defensive approach focuses on preventing as many breaches as possible.

Most businesses already focus on a defensive approach. However, defensive security implementations can be very complex, with conflicting and overlapping tactics.

Here is a six-step approach for securing your enterprise:

1. **Validate equipment readiness** against malware and distributed denial of service (DDOS) attacks with a security threat tester
2. **Block traffic** from known bad IP addresses
3. **Use inline real-time traffic analysis** to search for hidden malware and security threats
4. **Decrypt data packets** for better security inspection
5. **Perform advanced data filtering** to improve analytics
6. **Enable deep packet inspection** for threat detection and analysis

A simple approach that allows you to play both defense and offense will give you an advantage against bad actors.

1. Validate your equipment readiness. As a security engineer, you should begin by investigating the equipment already deployed in your network, testing it against various security threats. Obvious threat examples include DDOS and malware. You need to understand the capabilities of your defenses, and their strengths and weaknesses. Component testing in this manner is different from network penetration testing and port scanning activities. To accurately test your equipment, you will need a combined traffic and malware generator. This test device will create simulated traffic to mimic the type and amount of load on your network. The tester can then launch DDOS and malware attacks against your network components to see how well the security equipment handles the threats under load.

Security device testing typically results in the observation that most security devices do not function

according to manufacturer specifications for throughput. Actual performance numbers are typically 20-30% lower than manufacturer specifications.

This is because the security device tester creates a real-world environment, not an ideal lab environment. One note, the malware and DDOS attacks created by the test unit are real. So only perform this type of testing in a lab environment unless you want to take your production network out of service.

2. Block traffic from known bad IP addresses. Once you know the performance of your devices, the second step involves reducing incoming threats. Specifically, you want to block traffic from known bad IP addresses. Threat intelligence gateways that provide blocking capability are a perfect choice. Firewalls perform this capability as well, but the key is to eliminate any manual intervention on your part. You want to minimize time spent configuring firewall access lists to block constantly changing IP addresses.

Threat intelligence gateways with automated blacklists eliminate up to 30% of incoming threats right away, reducing your company's risk. Since most of this traffic is flagged as suspicious activity on your intrusion prevent system (IPS), you can expect a nearly 30% reduction in false positives on your IPS equipment as well. This reduces alert fatigue and speeds up IPS alert follow-throughs.

3. Analyze traffic with inline security appliances. Implementing an inline security tool solution for real-time analysis of incoming traffic that looks for hidden malware and security threats. Inline security tools (IPS, web application firewall (WAF), unified threat management (UTM), and others) allow you to proactively stop malicious threats before they enter the core network.

A standard inline tool deployment creates a single point of failure. This will do as much damage as a hacker – it will stop all incoming (and potentially outgoing) data flow on your network. A bypass switch deployed after the firewall allows your tools, such as your network packet broker and inline security tools (IPS, etc.), to operate without putting

Actual performance numbers are typically 20-30% lower than manufacturer specifications.

the network at risk. All traffic that reaches the bypass switch is shunted off to the NPB where it can be filtered, and load balanced to the security tools to create (n+1) survivability. Heartbeat messaging deployed between the bypass and NPB, and NPB to the security tools, provides another layer of reliability and business continuity.

4. Deploy data decryption. The Secure Socket Layer (SSL)/transport layer security (TLS) protocol protects network data from unauthorized visibility. Unfortunately, hackers have adapted to encryption as well, and now hide their malware within encrypted data packets. Encrypted malware attacks are increasing at a rate of 30% or more per year.

In addition, many tools cannot process encrypted data. The solution is to decrypt data packets, so security appliances can perform better security inspection. According to a recent EMA survey, 73% of security professionals are looking at decryption to help them secure their networks.

Once an NPB is deployed, there are two ways to perform decryption. One way is to connect an SSL decryption appliance to an NPB for high volume data decryption. Decrypted data is relayed back to the NPB, which will forward the data to the correct security appliance for analysis. The alternative is an integrated decryption approach where the NPB performs the decryption process. The NPB will forward the data directly to special purpose tools without impacting application performance. Data that passes analysis is re-encrypted and sent to the network core.

5. Perform advanced data filtering. The amount of data on your network will triple between 2016 and 2021, and so will your costs to analyze all that data.⁴ You will need more security tools and time to sift through the results. A more efficient and cost-effective approach involves isolating data that has a higher probability of being a security threat and analyzing just that data. This advanced filtering approach allows you to cost-effectively scale your security solution. An NPB with application intelligence provides the capabilities necessary to perform this task. Investigating application data starts with identifying the types of application data that should be inspected and shunting it to your security tools. This involves deploying a network packet broker with application filtering and advanced data

analytics to detect suspicious activity. For example, take a university that has extensive amounts of data flowing across its network for research – file transfers, communications (voice and email), and video (video conferencing, as well as streaming apps for students living on campus). Screening all this data would take a long time and a lot of security tools. At the same time, some audio information (like voice over IP (VoIP) and Pandora), and video information (like Hulu, Netflix, and Amazon) may not be worth screening. By using application intelligence, an NPB could look at the data based upon application type and filter this type of data out of the monitoring data analysis stream. Data that requires further analysis passes on to an intrusion detection system (IDS).

Employing an application filtering approach can reduce the amount traffic sent to an IDS by up to 35%, providing significant cost savings to the university IT staff. The university literally cuts its IDS tool costs by one-third.

6. Enable deep packet inspection. Use Deep Packet Inspection (DPI) to find real security threats buried in normal traffic flows. DPI goes far beyond simple detection of patterns, performing forensic analysis to see data exfiltration attempts and limiting data loss. Taps and NPBs capture either widespread network data and/or very granular pieces of network data, and then distribute that data to various security tools, like a data loss prevention (DLP), next-generation firewall (NGFW), or IDS for analysis. Well-designed NPBs allow information technology (IT) engineers to selectively screen packet data based on various criteria, like routing protocol, IP address, VLAN, application type, or other parameters, and deliver that data to the security tools, e.g., a DLP, for deep packet inspection. DLPs then extensively review suspect data, analyze the data, formulate a determination, and pass that information on to other devices. In addition, NetFlow data can be delivered to security and analysis tools, like a security information and event management (SIEM), for analysis and security decisions. The SIEM either quarantines the information or delivers it to a storage device so that an IT engineer can review the data as part of a possible breach and remediate the threat. ●

#Security #Screening #Encryption
#Decryption

73% of security professionals are looking at decryption to help them secure their networks.

Norton

Is your personal data leaking from your "digital exhaust"?

Synchronization services provide convenience, but also risk, as we switch between devices, our calendars, emails, notes, photos and other information follow us – always keeping us up-to-date.

Inadvertently syncing the data onto your home computer may also violate your company's policies.

Your digital exhaust. As you travel through the internet, you leave a data trail behind you – something known as "digital exhaust." Companies like Apple and Google have built services into their products that allow important pieces of data you may use multiple times a day to follow you from device to device. These synchronization services are built into the iCloud and Google Chrome. They're the reason you can keep items such as your bookmarks or iMessages synchronized between all the devices you use them on.

It's important to note that synchronization services from Apple iCloud and Google Chrome operate effectively as designed. The security concerns that are highlighted come from the tradeoff we make by using these services for the convenience and efficiencies they provide to us.

Risks of synchronization. Let's say you are working on a new project at work. You store some notes about the project in your Notes app on your corporate Mac, which is using your personal iCloud account. When you leave for the day, you shut off your computer.

What you don't realize is you may have already put that highly confidential data at risk.

Because of the synchronization service, the data you stored in the Notes application on your work computer was also automatically stored in your home computer Notes application. In fact, the data was in your home before you were.

This poses potential risks. Since home networks generally have less security than company networks, cyber criminals may have an easier time accessing it. Inadvertently syncing the data onto your home computer may also violate your company's policies.

The data replication goes the other way as well – from your personal device to your work computer. Imagine that you stored some personal medical in-

formation on your smartphone using your personal iCloud account. If you use the same account for your work computer, the information will be stored on your company network. That means your company might see some of your personal information that you prefer to keep private.

How to reduce your risk. The point isn't to stop using synchronization services, since they do make our lives easier. However, you should realize the risk they carry, so you can use the services in a way that allows you to protect your most sensitive data while getting the maximum benefit of these convenience services.

Consider the following ways to keep your data more secure:

- **Keep info separate.** Do not use your personal Google (Gmail) or iCloud accounts on your work computer and vice versa.
- **Don't be a borrower.** Use your account only on machines and networks you trust; don't use them on borrowed devices that you cannot factory reset after use.
- **Should you fill up?** Turn off the feature in Chrome or Safari that automatically fills forms.
- **Turn on or turn off.** Switch off synchronization capabilities on devices that you do not wish to store data on or share data from.

We live in a fast-paced world, and we've become used to the idea of being able to access any information we want at any time from any device. It's important to understand the security risk that comes with this modern level of convenience. You'll never be able to eliminate your entire digital exhaust. However, you can keep some of your most sensitive information from spewing out of the tailpipe. ●

#Security #Phishing #SpearPhishing