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KNOWLEDGE 2020 DIGITAL EXPERIENCE

IT Operations Management Book of Knowledge

How your peers are delivering enhanced visibility, health, and optimization.

An unprecedented pivot in unprecedented times.

When planning began for Knowledge 2020 (K20), ServiceNow's annual spring user conference, no one could imagine the challenges and changes soon coming to the world. In March of 2020, to ensure the safety and health of attendees, partners, and community, it was announced that the popular event would be transformed into a digital experience; an online showcase rolled out over six weeks, exploring all the ways you can unlock productivity through modern digital workflows, highlighting the latest customer and platform innovations, and inspiring the ServiceNow community to continue to create great experiences for their customers and employees.

From May 4 to June 11, 2020 the new K20 Digital Experience offered over 1,000 high-value online keynotes, presentations, demos, and training across 19 channels. More than 70,000 of your peers registered, with some sessions seeing "live," virtual audiences of nearly 4,000.

This K20 Digital Experience Book of Knowledge

This ebook presents a taste of what was covered around ServiceNow's IT operations management (ITOM) solution, highlighting major thought leadership presentations, as well as breakout sessions—led by customers and solution experts.

Since K20 Digital Experience lives on with recorded presentations and demos available on-demand, we'll provide session titles and numbers to help you easily find them for further exploration in our event video portal: knowledge.servicenow.com

If you did not register or attend the original K20 Digital Experience, no worries. Simply register on the site for complete access. There is no charge.

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Knowledge 2020 Digital Experience:
IT Operations Management Book of Knowledge

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Introduction: Why IT operations management is the new focal point of business stability

Maintaining healthy IT operations has become top priority and, thus, a hot topic, especially with the unprecedented stresses being placed on systems as businesses redefine how they are keeping their doors open. In his K20 Digital Experience presentation, Brian Emerson, VP of Product Management at ServiceNow, discussed ServiceNow's thinking about the surprising market changes, what customers are saying (and feeling), and what the future holds for technology development. His "Three Needs" framework will be applied throughout the rest of this ebook with customer examples and best practices.

First, let's consider how pizza chains are staying profitable (Yes, this does relate)

"I'm starting with a major pizza chain as an example," Brian opened. "Pizza is pizza, right? And really how they differentiated their business is around the software that is built to engage their end customers, building a mobile experience for ordering a pizza, being able to order a pizza, using an Alexa device, be able to track your orders and make it very simple to be able to manage favorites." All companies have become like that pizza chain: working to digitally transform their approaches just to stay in business. It's this need for nearly instant and consistent innovation to stay competitive that is presenting IT operations with the biggest challenges ever.
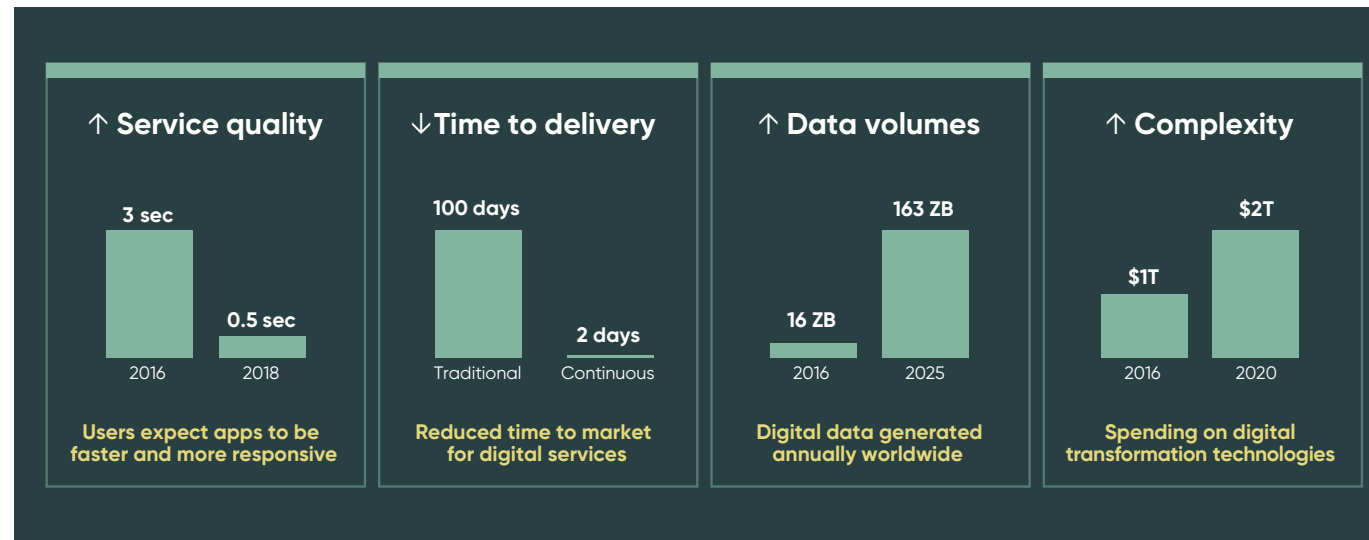
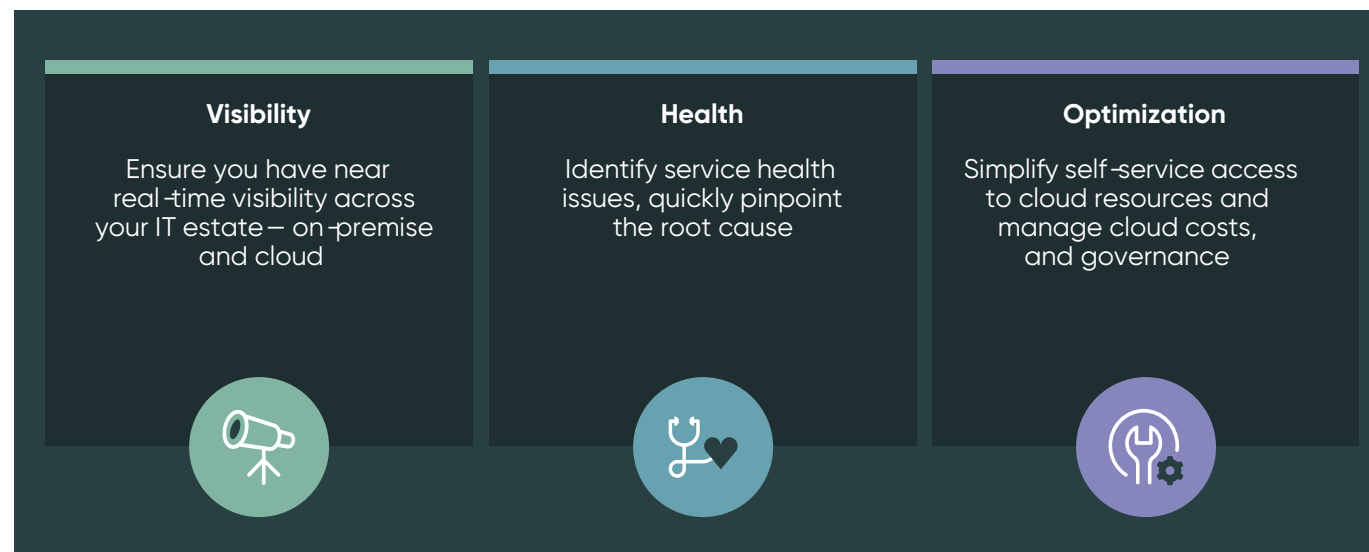servicenow

3 Top Needs of ITOM:

Visibility

Health

Optimization

Challenges faced by today's IT operations organization

↑ Service quality	↓ Time to delivery	↑ Data volumes	↑ Complexity
3 sec (2016) / 0.5 sec (2018)	100 days (Traditional) / 2 days (Continuous)	16 ZB (2016) / 163 ZB (2025)	$1T (2016) / $2T (2020)
Users expect apps to be faster and more responsive	Reduced time to market for digital services	Digital data generated annually worldwide	Spending on digital transformation technologies

Monthly, weekly, sometimes daily, new features and capabilities are being pushed out. The code is never static. "That means you have to manage a combination of all the new things and all the old things at the same time and understand how they interconnect," said Brian. This leads to three main needs of the modern IT operations department.

The three needs of IT operations success for 2020 and beyond

Visibility

Ensure you have near real-time visibility across your IT estate— on-premise and cloud

Health

Identify service health issues, quickly pinpoint the root cause

Optimization

Simplify self-service access to cloud resources and manage cloud costs, and governance

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Need 1 | Visibility

Getting a better understanding of data and business context

A dependable, centralized view

"I think everybody knows this scenario," said Brian. "You have data repositories, everywhere, you have multiple discovery tools in a lot of cases. But the one thing that you don't have is a centralized view of all this information. How do you create an environment where everything's in the same place?"

This challenge is particularly evident in data acquisitions from many sources—public cloud, on premises, multiple third-party tools. "We spent a lot of time with our partners to build integrations into third-party tool sets," shared Brian. "We don't really care where the data comes from, but we want to be able to rationalize that in our system." This centralized asset relationship data can help all IT teams and systems understand what the environment looks like and how the infrastructure supports all applications and business services.

Understanding what all that data means

"You also need business context," said Brian. "How do all of these servers, network infrastructure, cloud-based services, how do they all roll up to support and users, whether they're employees or customers, and what applications are they supporting?"

To solve for these needs, ServiceNow ITOM Visibility leverages numerous cloud-based resources and tagging strategies to generate maps. The library also includes specialized maps from app performance vendors all integrated into the system to help drive better decisions.

"The better business context you have around the things that are important, the more likelihood that you're going to have happy employees and happy customers from a system standpoint," added Brian.

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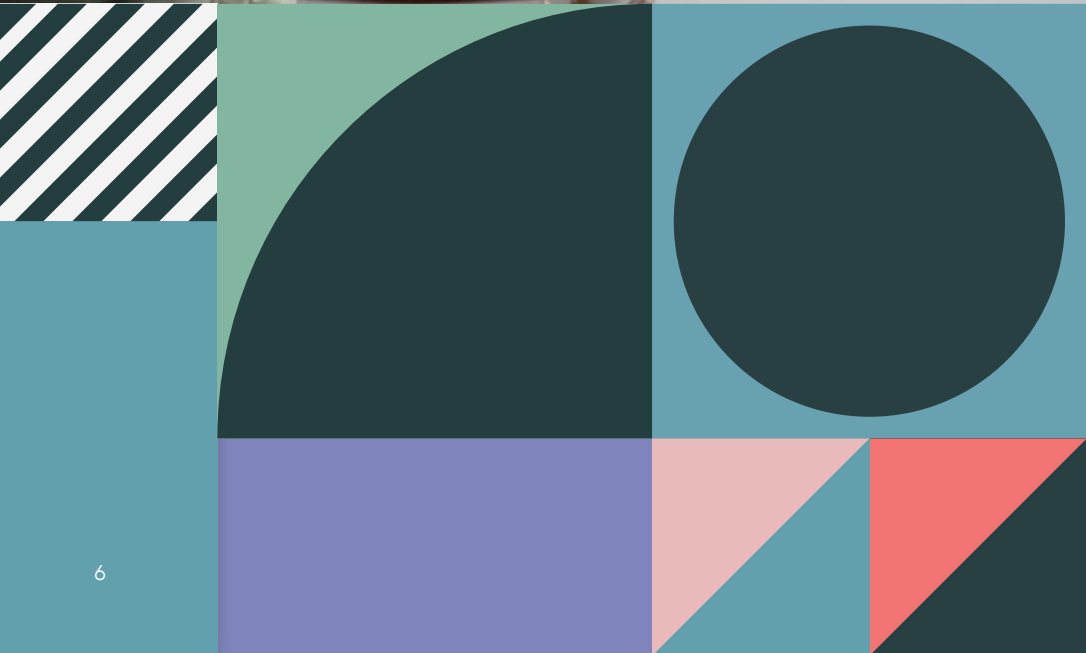
"The whole goal [of AIOps] is to be able to aggregate all those different [data] sources..."

Need 2 | Health

Tapping AIOps and richer intelligence for greater continuity

"Most large customers I talk to have between 20 to 30 monitoring tools, network monitoring, server monitoring, etc. And they're all generating events," shared Brian. "So, the question is: What do you do with that amount of noise? How do you rationalize it? And then how do you drive decision making based on it?"

IT operations needs to have instant and reliable understanding of who is actually impacted by events and also what is the actual root cause. Should you even care?

"This is more challenging than you think," said Brian. "There's a lot of burned up time spent just trying to figure out what's going on it while that's happening and what users are really impacted,"

ServiceNow solutions offer insights that can actually help predict or prevent issues before they occur. This is called predictive AIOps.
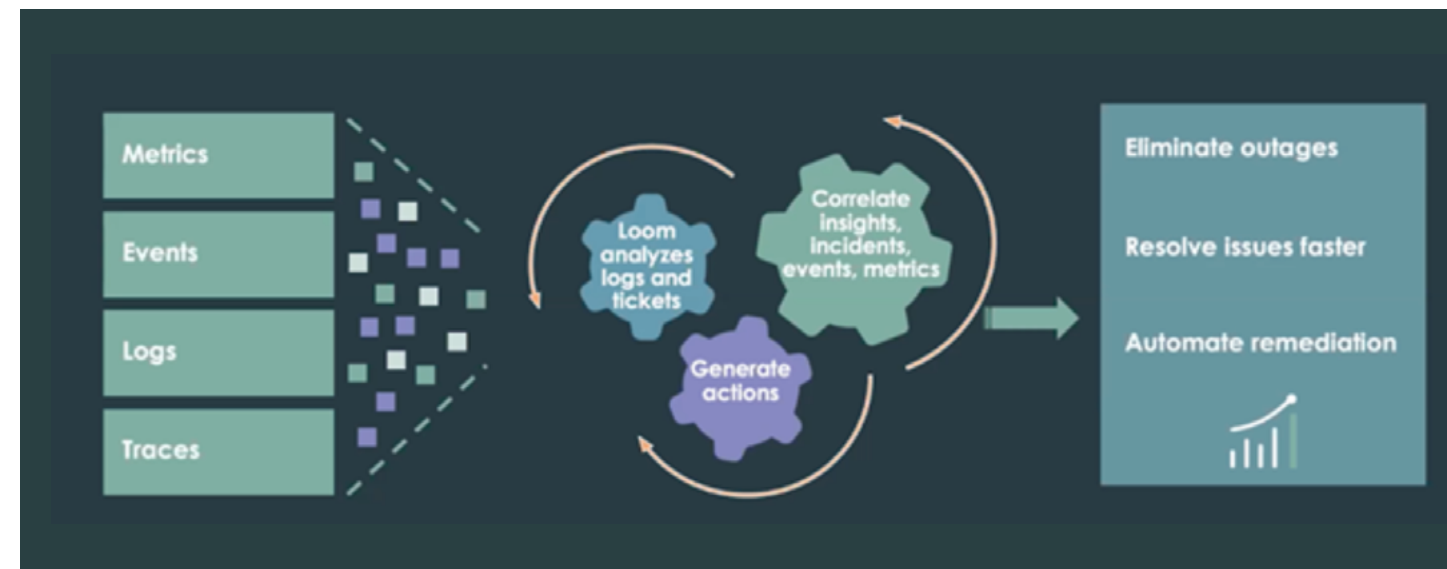

"With the recent Loom Systems acquisition we have the ability to get more intimate with data, specifically around logs." said Brian. Customers are able to do log analysis to provide early indications of potential issues that are occurring, create predictive incidents, and even resolve them before users are actually submitting anything. Added Brian, "The whole goal is to be able to aggregate all those different sources...How can we take all that noise and drop it down to a critical few things that operations needs to look at, to be able to resolve what's going on?"

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We want customers to build up a library of repeatable playbooks for all sorts of actions.

Need 3 | Optimization

Powering automation to enhance operational efficiencies
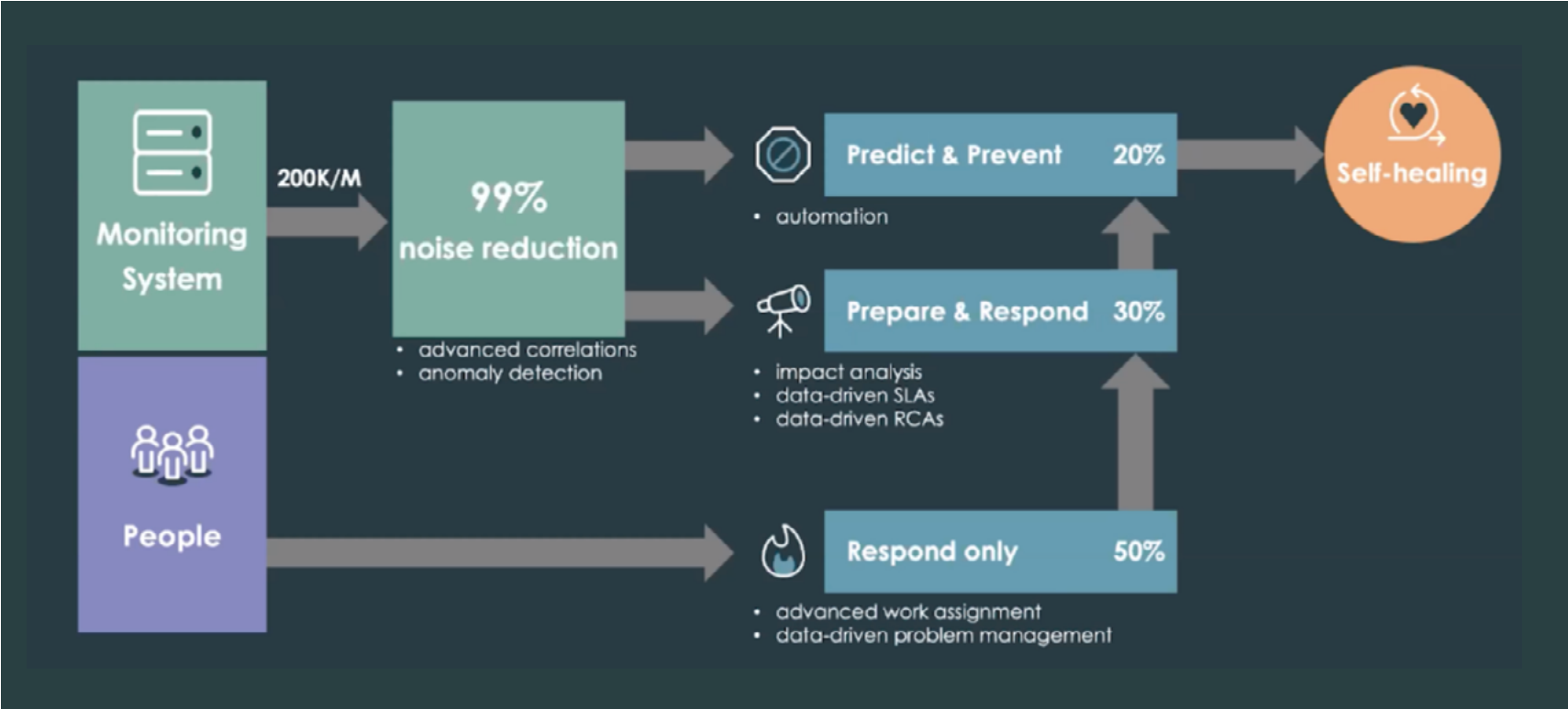
"One of the things that we're investing in across multiple solutions is a concept called 'playbooks,'" said Brian. A playbook is a set of predefined automated steps that you can associate to a certain alert type. Some can be automated. Some can be manual. The goal is for customers to build up a library of repeatable playbooks for all sorts of actions. The playbooks ServiceNow is currently running are successful 100% of the time. Said Brian, "We have a deep understanding of root cause. And we can correlate that with playbooks and automation that allows us to build a world where we get the system to drive automated action."

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The voice of the customer: How ServiceNow users are answering new critical IT operations needs

The following are summaries of the best stories shared by your IT colleagues working at major companies and ServiceNow.
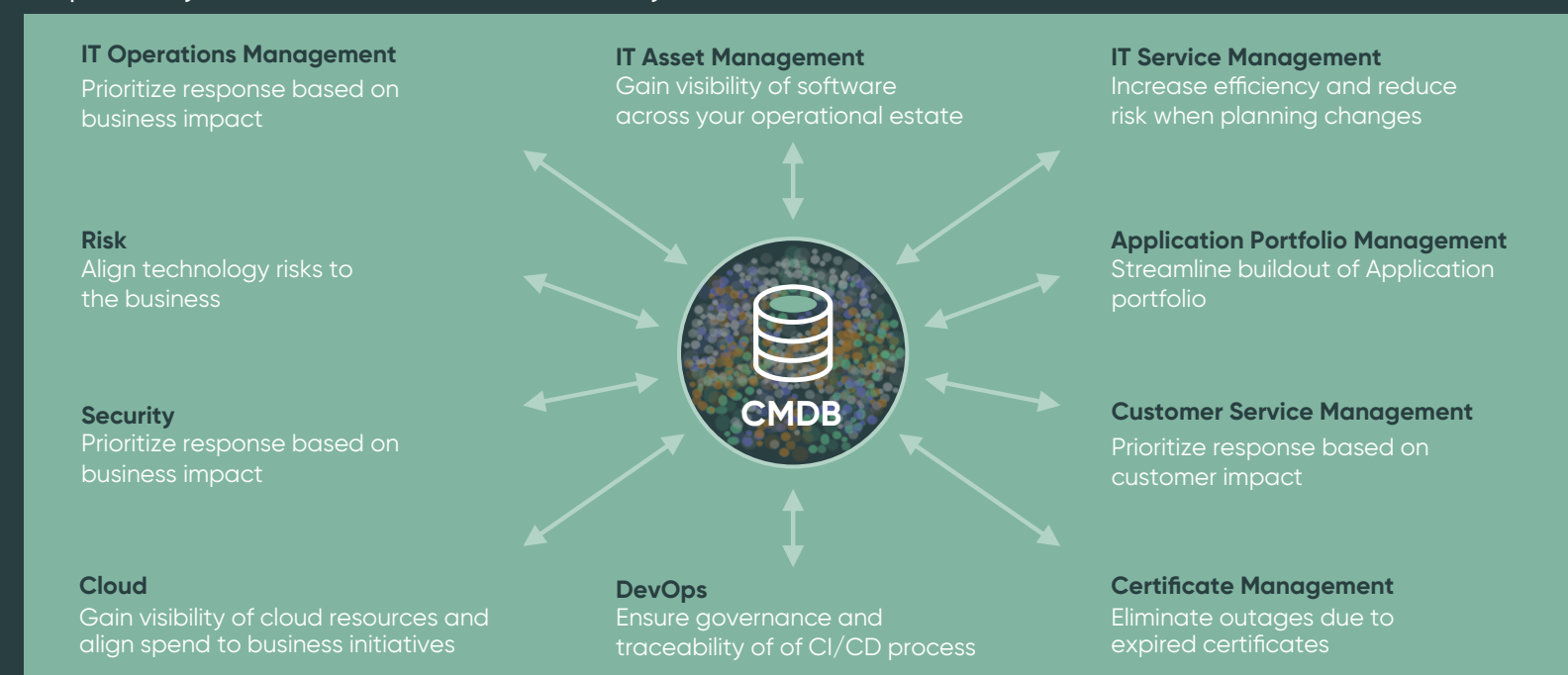
Your peers' thoughts on IT Visibility

Getting a better understanding of data and business context

First, what is the modern configuration management database (CMDB)?

We view a CMDB as something evolved beyond the original ITIL-led, stand-alone, on-premises system. Modern CMDBs are cloud based and deeply integrated with IT tools. They provide holistic views of IT environments—a single source of truth—to help staff analyze and respond swiftly to incidents and changes, whether manually or automatically, and they are part of a single platform.

The CMDB is your digital foundation
Populate your CMDB with ITOM Visibility to drive differentiated outcomes

IT Operations Management
Prioritize response based on business impact

IT Asset Management
Gain visibility of software across your operational estate

IT Service Management
Increase efficiency and reduce risk when planning changes

Risk
Align technology risks to the business

Application Portfolio Management
Streamline buildout of Application portfolio

Security
Prioritize response based on business impact

CMDB

Customer Service Management
Prioritize response based on customer impact

Cloud
Gain visibility of cloud resources and align spend to business initiatives

DevOps
Ensure governance and traceability of of CI/CD process

Certificate Management
Eliminate outages due to expired certificates

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Your peers' thoughts on IT Visibility

According to Finastra, NC State University, and Northwestern Mutual, it all starts with a healthy CMDB

"CMDB is the glue that holds the organization together." That's just one quote from a panel of CMDB experts from Finestra, North Carolina State University, and Northwestern Mutual. They shared the key benefits their systems have delivered, as well as timely suggestions for those looking to up level their centralized configuration management.

Panel discussion

Question: What is your current use of CMDB?

Gary Collins, Director ServiceNow Platform at Finestra: *Our journey on the CMDB started about two and a half, three years ago, when we kicked things off by trying to create that central repository for all of our assets in the organization. We could start to deliver the value across the organization by the team's better understanding of what we own, where it was deployed, and how it worked.*

John Constantelos, IT Manager and CMDB Process Owner at North Carolina State University: *The CMDB is our foundational building blocks for everything that we're doing, from service mapping to incident mapping to our change management processes. We are a very siloed campus; central IT only has about 40% of the IT people and services. So, a lot of our decisions and processes are done by committee. A lot of our journey has been communicating selling the solution on the benefits, and we've made fantastic progress over the last year and a half.*

Beau Bramlett, Director of IT Service Management at Northwestern Mutual: *We use it for a roadmap for all of the critical CI classes that we were deploying, and our biggest focus has been on the data quality aspects of it and setting expectations in that regard.*

Question: What was the biggest challenge with your CMDB effort?

John: *Just having the trust with the rest of the IT organizations across campus that we're going to be delivering a service for them that helps them solve a business problem. We've done some data mining within our incident tickets and have been able to come back and say, "Here's a pretty significant incident that we had. We could have understood the implications of all the problems it caused if we had the CMDB in place."*

Beau: *From our perspective, the way we socialized it and got it going, and got the success that we were looking at— some five million CIs right now—was from basically saying we're a data service provider, pure and simple.*

Gary: *We've had a lot of mergers and acquisitions over the course of 20 years, so the result of that is that it's a very diverse CMDB with lots of different owners across the organization. We have well over 100 different domains in our organization. ...we need to tap into all of those to gain access to the information that we need to populate the CMDB. Then we've got the issue of now how do we validate all of that data with the appropriate subject matter experts across the organization? The other thing... as soon as you turn it on, and it does start to populate it's flooded hundreds of thousands upwards of millions of CIs. And now you've got to make the distinction as to what do you really care about what do you want to manage...*

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>
> It's kind of cool we just kind of set it and forget it.
>
> – Beau Bramlett, Director of IT Service Management, Northwestern Mutual

Question: What have been the results of your efforts?

Beau: *Now we have over 60 of our critical CI classes taken care of with millions of CIs. It's kind of cool. We just kind of set it and forget it. But it's really all about understanding the value of the data you're presenting versus just quantity versus quality.*

Gary: *We now know where we need to patch things. People are really seeing the value and they can latch on to that, because that means something to them, it means that they can run their business more smoothly, it means they can recover more quickly.*

Question: What tips do you offer?

Gary: *Make sure that people understand that CMDB and configuration management is a journey, it's not a one and done. You can't just import your data or flick a switch and turn on discovery. Done. You need a lot of help to validate the information, you need subject matter experts to come to the table.*

John: *Our recipe has been to get security involved from the very beginning help them understand what you're getting ready to do and how it touches the network. That has a tendency to get people on edge a little bit. Get commitment from all the people that are going to be included in this offer to ensure compliance.*

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CMDB as the foundation for ServiceNow's own success

In their session on ServiceNow's own journey to a healthy CMDB, presenters Joe Corpion, Director Now on Now, Asset Configuration Management, and Jason Wang, Director, IT Workflows and Now Platform, shared accomplishments delivering 94% automated change approvals and other impressive stats.

"Back before 2017, when critical outages occurred, we didn't have the complete visibility needed to quickly identify the source of the problem and its potential impact on business services," said Joe. "We couldn't then address the root cause. A CMDB was not being used across our applications in the platform. We also had many data issues with configuration items. There were duplicate CIs, in some cases, as many as 250! Also, when we began using our CMDB, its functionality was limited requiring us to make customizations to meet our IT needs. While these customizations did provide the additional functionality, they also made upgrades very challenging for us."

The presenters then shared that there was no centralized data repository. The subsequent data quality issues forced IT to use tribal knowledge in spreadsheets to manage devices. This was further complicated by the lack of governance about who owned what and who was responsible managing it.

The ServiceNow CMDB makeover

"First we streamlined our monitoring environment to include only bringing over actual events through integrations," said Jason. They then elected key business services as the first candidate in the service mapping effort. "As a result, we cut P1s by almost 60% in the last two years," said Joe. "Pretty cool."

The next step was resetting discovery to address CI data issues and establish a single source of truth. Following that came vulnerability management, which provides accurate correlation between vulnerabilities and infrastructure endpoints. "That alone has significantly improved the speed of which we operate today," said Joe.

The outcomes

In 2017, ServiceNow had 48 P1 outages. In 2019, that number was only 20 P1 outages. "A pretty good metric," said Joe. "But our target is to have zero outages." Other metrics shared were:

- 100% accurate view of critical infrastructure availability
- 71% reduction in time to close vulnerability tickets
- 94% of changes have an automated approval process
- 1,250 hours saved per year by automating CMDB audit

Joe concludes with a phase he used earlier, "Pretty cool."

Extra Credit—Canadian National Railway evolves from basic CMDB to a CSDM model

As Canadian National Railway has embarked on its journey to modernize IT service management with ServiceNow, they identified the implementation of a common data foundation as a critical success factor. Going beyond the implementation of just a standard CMDB, they wanted to also include data required for business, portfolio, and financial management needs. The new Common Service Data Model (CSDM) was chosen as it was a comprehensive approach.

The journey so far has included the defining, evolving, and implementation of the CSDM, as well as the adoption and alignment to the Technology Business Management (TBM) framework to define services.

A Partnership between CN and ServiceNow
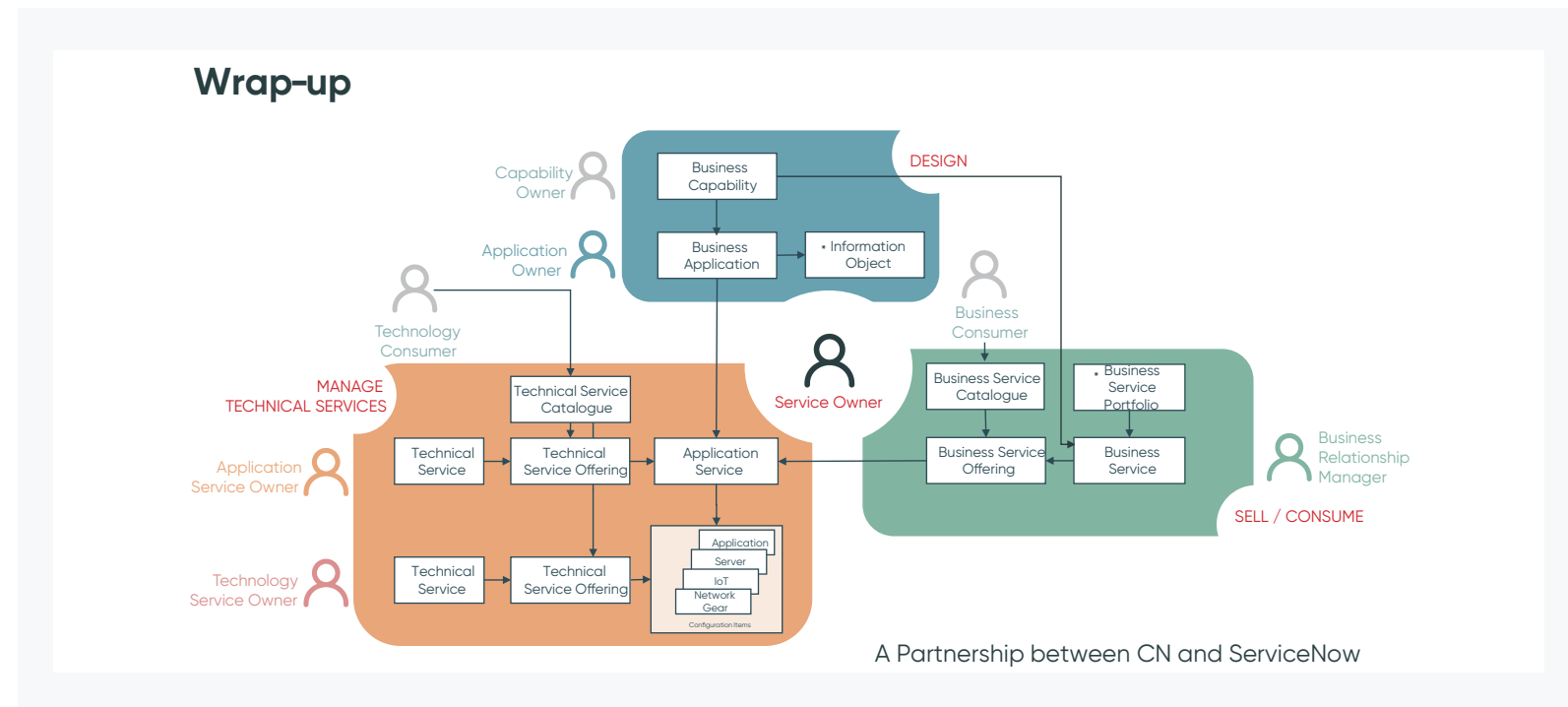
Said presenter Saskia Roukema, Senior Business Architect at Canadian National Railway, "I really don't know how you would do it any other way; [now] we're much more comfortable with our results that we're getting. It's very stable. And it's not just data in the background or a data model, it really is now the way people think and operate, and it has it been critical for change management."

Referenced K20 Digital Experience Session:

Evolving from a basic CMDB to a CSDM model at Canadian National Railway
Visit **knowledge.servicenow.com** and search by session title to watch on-demand.

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Your peers' thoughts on IT Health

Tapping AIOps and richer intelligence for greater continuity

Walmart ⁜

Doing IT operations right at Walmart scale

"This is a story all about how the event management process flow in the event management development lifecycle was improved for Walmart," opened Matthew Gerbitz, System Engineer at Walmart.

An opportunity-rich environment

To put the initial challenge into perspective, Matthew shared these facts about their non-production instance:

- 80-100 Million CIs and growing
- Multiple monitoring sources
- Millions of events
- 3/4 become alerts
- 1/2 of alerts become incidents

"We had many multiple moving parts and not all we're working together," said co-presenter, Susan Arnold, Systems Engineer at Walmart.

They found themselves trying to understand ownership of integrations, what they were monitoring, how to decrease the incident volume, better resolve CI binding issues, and remove a legacy routing process. They also noted that there was a tremendous amount of time taken up in multiple meetings needed just to understand needs and impact; as well as cumbersome manual processes to create event and alert roles, plus support the DevOps side (with rollouts often taking weeks to complete).

"Auditing was another challenge," said Susan. "We found ourselves trying to remember who requested which integration for one application and how they communicated with us." They were relying on emails, Slack group messages, DMs, walkups, field notes, to name a few. "When production issues occurred, we found ourselves struggling on the current integration. We had very little detail, and we were using a legacy form of routing to send these event-created incidents to the teams."

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At Walmart, we have a saying: 'Save money, live better.' We found that with automation, we were able to achieve both of these goals.

– Susan Arnold, Systems Engineer, Walmart

How to optimize processes and lives

"At Walmart, we have a saying: 'Save money, live better,' shared Susan. "We found that with automation, we were able to achieve both of these goals."

She continued, "Our new intake automatically builds both event and alert rules that run to discovery for CIs that are going to be used to create the events." It then automatically creates update sets for development and disregards.

"We also needed to help our customers reduce the amount of instances they were creating," said Matthew. "We wanted them to be more proactive instead of reactive." Automation allowed the team to put a form of governance in place that would allow only specific severities to process from one table to the next. The severity would determine whether the event created an alert and eventually an incident.

That was just the start

Susan concluded, "We were able to roll out to production faster, which allowed for less impacting issues to occur, since our development didn't take as long. We found we were living better because we were not attending as many [info] gathering sessions, and also with the automated process, we found we were less stressed due to the flow going faster from catalog items with little to no human contact, other than the push of a button for approval."

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USAA operate high-performing services with visibility, security, and AIOps

"As we continue to deliver world class experiences for our [millions of] members," said Pablo Sarabia, DevSecOps Enterprise Architect at USAA, "the pressure to ensure the availability and resiliency of our services exponentially grows in importance."

Pablo shared that USAA translates billions of downstream monitoring signals into manageable and actionable events that the business and engineering partners can leverage. "It's part of their observability maturity efforts," he added. "By leveraging advanced correlation capabilities of the ServiceNow Event Management platform, and by creating a common event stream processing pipeline, it allows us to consume service level objective (SLO) breach events in a uniform methodology."
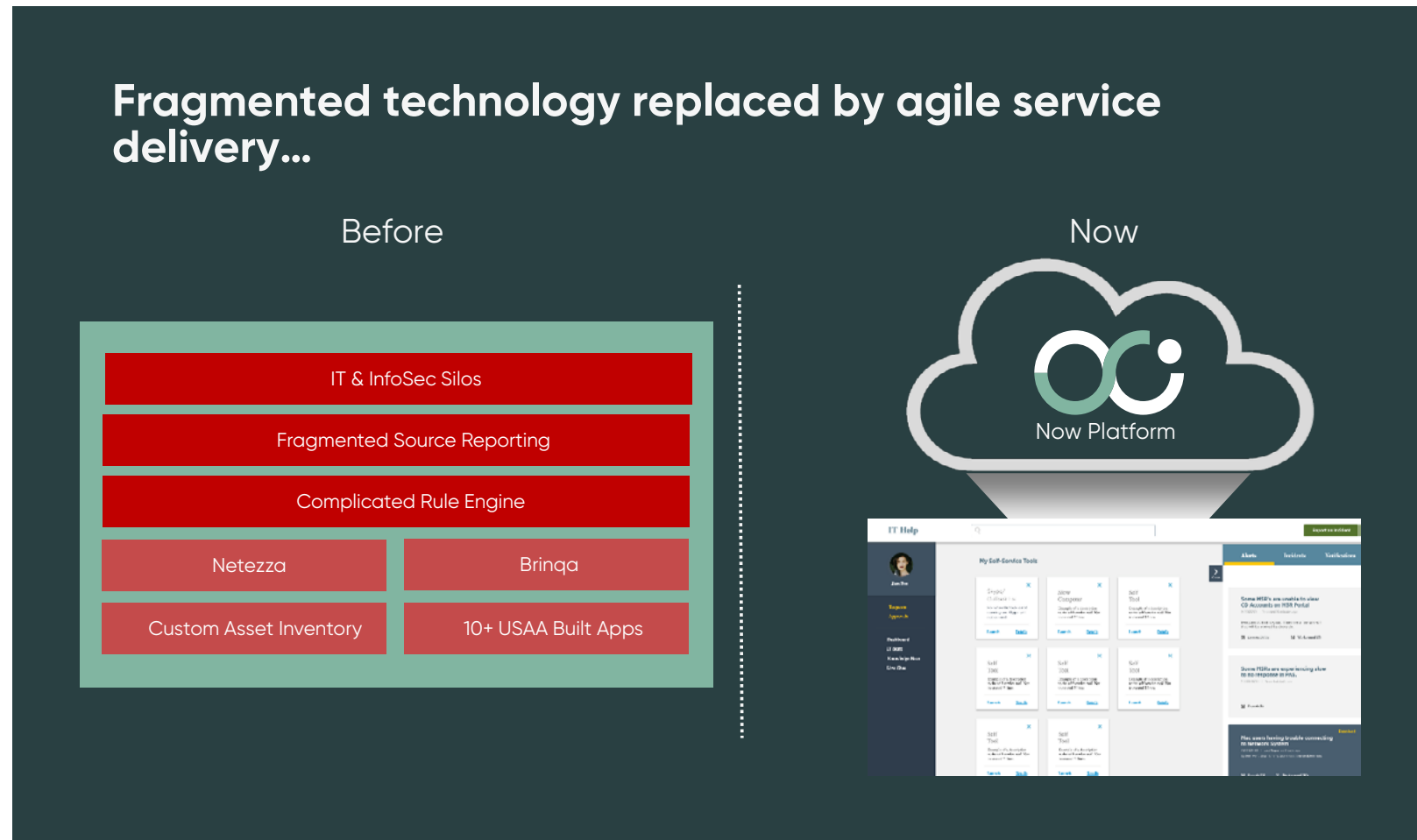
What the CMDB powers

The CMDB metadata allows USAA IT to tie business context to inbound events, such as understanding business services that are being impacted and configure dynamic priorities for the bank, property and casualty, or P&C business, or enterprise services.

Added Pablo, "This enables playbook automation such as incident escalation, business and application impact analysis, change and vulnerability correlation, and really allows us to push the bounds of automated remediation capability development at USAA. However, this extends beyond site reliability engineering processes and practices by allowing downstream observability platforms to send machine learning telemetry to our pipeline, allowing those same signals to leverage the same features provided to the SLO breach events."

Through AIOps and SecOps VR, USAA IT now has one common unified framework to discover vulnerabilities from applicative source code, containers, and operating systems. The silos no longer exist. "This has allowed our amazing engineers, architects, leaders, and business partners to leverage past learnings to streamline the implementation," added Pablo.

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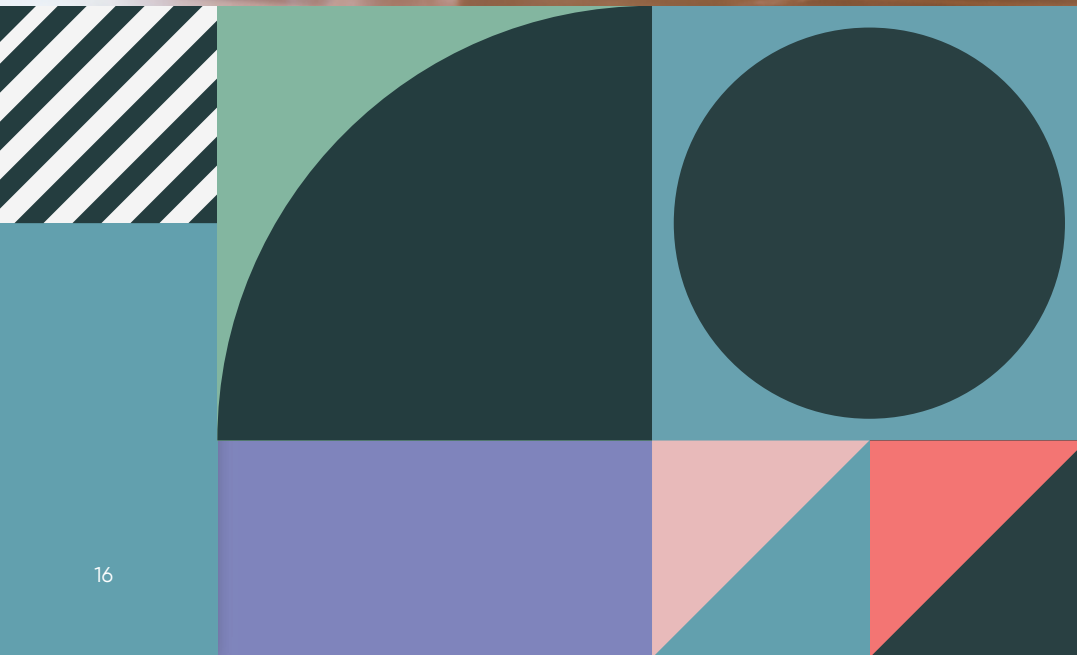
AIOps has identified additional metadata to drop current vulnerabilities by 42%, drop past due vulnerabilities by 56%, and total vulnerabilities as a whole, by 50%.

Fragmented technology replaced by agile service delivery...

Before | Now

IT & InfoSec Silos

Fragmented Source Reporting

Complicated Rule Engine

Netezza | Brinqa

Custom Asset Inventory | 10+ USAA Built Apps

Now Platform

The outcomes

"This is where things get really, really exciting for me," said Pablo. "Merging business context into our processes and leveraging that additional CMDB metadata allowed us to succeed in our vulnerability management program transformation, all in a 90- day implementation timeline."

AIOps has identified additional metadata, such as business service, to help adjust priorities and drop current vulnerabilities by 42%, drop past due vulnerabilities by 56%, and total vulnerabilities as a whole, by 50%.

"Those are some big numbers for us," said Pablo, "And that continues to trend in a positive direction as we continue to discover new efficiencies on this unified plan."

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> " We're going to make a strong argument that time invested in automation is time that you will recover.

– Christopher G. Roge, ServiceNow Innovation Lead, Accenture Federal Services

Your peers' thoughts on IT Optimization

Powering automation to enhance operational efficiencies

accenture

Accenture Federal Services journey with Cloud Management

Said presenter, Christopher G. Roge, ServiceNow Innovation Lead, Accenture Federal Services, "We're going to make a strong argument that time invested in automation is time that you will recover."

While investigating options for automated provisioning of Azure VM, Accenture found a surprisingly simple way to navigate the rough waters of Azure ARM Templates within ServiceNow using the Cloud Management plugin. Rather than utilizing the Cloud User Portal, they wanted to integrate Azure VM Provisioning into their legacy IT services catalog. They also needed to plan for more complex VM deployments but did not want to manage increasingly complex ARM Templates in the process. The solution was to separate the UI from the cloud provisioning by creating a record producer which calls a script to programmatically push user variables to the Cloud Blueprint of their choice.

In short, they delivered

"The VMs we created through this process are all created the same way, and have this, and are all standardized," said Christopher. "This allows product managers from other projects to require and request VMs, to accurately predict when those VMs will be ready. The total time to create a VM minus approvals is around 30 minutes, compared to potential days of delay due to sticker shock and back and forth with the customer. Additionally, as we add additional features, such as the designers' day configuration, proximity groups, and availability sets."

The key was using a modular approach

"This allowed us to provide a quicker turnaround times for new features and assets, going forward," said Christopher. "What have we learned, simply usually works better than complex."

Referenced K20 Digital Experience Session:

Accenture Federal Services - Our journey with Cloud Management
Visit **knowledge.servicenow.com** and search by session title to watch on-demand.

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Other inspirational stories worth exploring

NTT Communications
Go the Distance.

NTT Communications Corp develops a "zero-touch operation" service to automate recovery of 100,000+ outages

NTT Communications Corp. helps customers realize the benefits of digital transformation and create smarter societies with ICT. A new addition to their strategy is a "zero-touch operation" service powered by ServiceNow IT Operations Management. This new system is for their global cloud computing service, addressing 7,000+ recovery procedures and 500,000 database recodes, and it works on more than 10 related systems. Running for over one year, the zero-touch operation system has automated 100,000-plus recovery operations and reduced MTTR to one-tenth of the MTTR recorded using manual systems.

UNISYS

Unisys integrates and manages Microsoft Azure Stack with ServiceNow Platform

Said Anil Veeramalli, Senior Cloud Architect, Unisys, "We designed and built the framework to support provisioning discovery and data operation. This presented a successful end to end automation."

By extending ServiceNow workflow functionality to drive their CMP called "CloudForte," Anil and other Unisys developers created a powerful experience similar to what users were used to managing Azure and AWS directly. They designed and built a framework with a difference, delivering a vast reduction in manual actions with ServiceNow as the framework supporting provisioning, discovery, and Day 2 operations.

Pre-provision, provision, and post-prevision activities, as well as the CMDB integration are fully automated and managed via a single view. This has reduced end-to-end tasks completion from hours, even days, to less than 20 minutes on average.

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Conclusion

In all the turmoil, we are confident that one constant remains: IT operations need to be managed effectively to ensure business continuity.

The rapid change that has impacted IT operations has been massive: more distributed users, more IT staff working remotely, budget cuts, and higher reliance on resiliency. If organizations were just getting by before with manual processes and disjointed tools, the new environment has made it much harder to improve resiliency, reduce costs, and allow innovation. Many ServiceNow users have taken advantage of the visibility, health, and optimization provided by ServiceNow to help predict, prevent, and automate across their entire IT organization.

We trust that this sharing of K20 Digital Experience sessions has served as inspiration for the next phase of your IT operations management.

The featured sessions, as well as many other keynotes, breakouts, labs, and trainings, are available on-demand at **knowledge.servicenow.com**. We invite you to explore them, and if you have any questions, reach out to an IT operations management expert **here.**

Stay safe and healthy.

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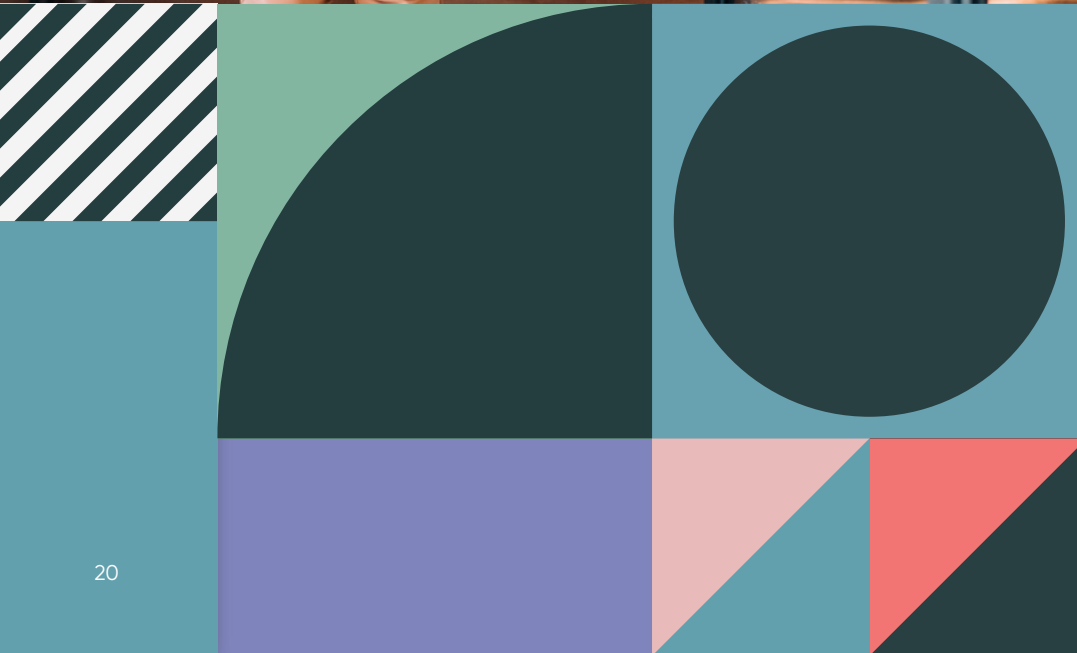
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To see the on-demand sessions listed in this Book of Knowledge and many more, visit **knowledge.servicenow.com**