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IT Operations Management

Bridging the gap to deliver
mission-aware operations

Dave Deal
Advisory Solution Architect,
ITOM, ServiceNow Federal

Sujit Mohanty
DoD Chief Technology
Officer, Microsoft

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Digital is the main reason just over half of the companies on the Fortune 500 have disappeared since the year 2000

Pierre Nanterme
CEO of Accenture

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Engage your Citizens

Transform your Products

Digital Transformation

Empower your Employees

Optimize your Operations

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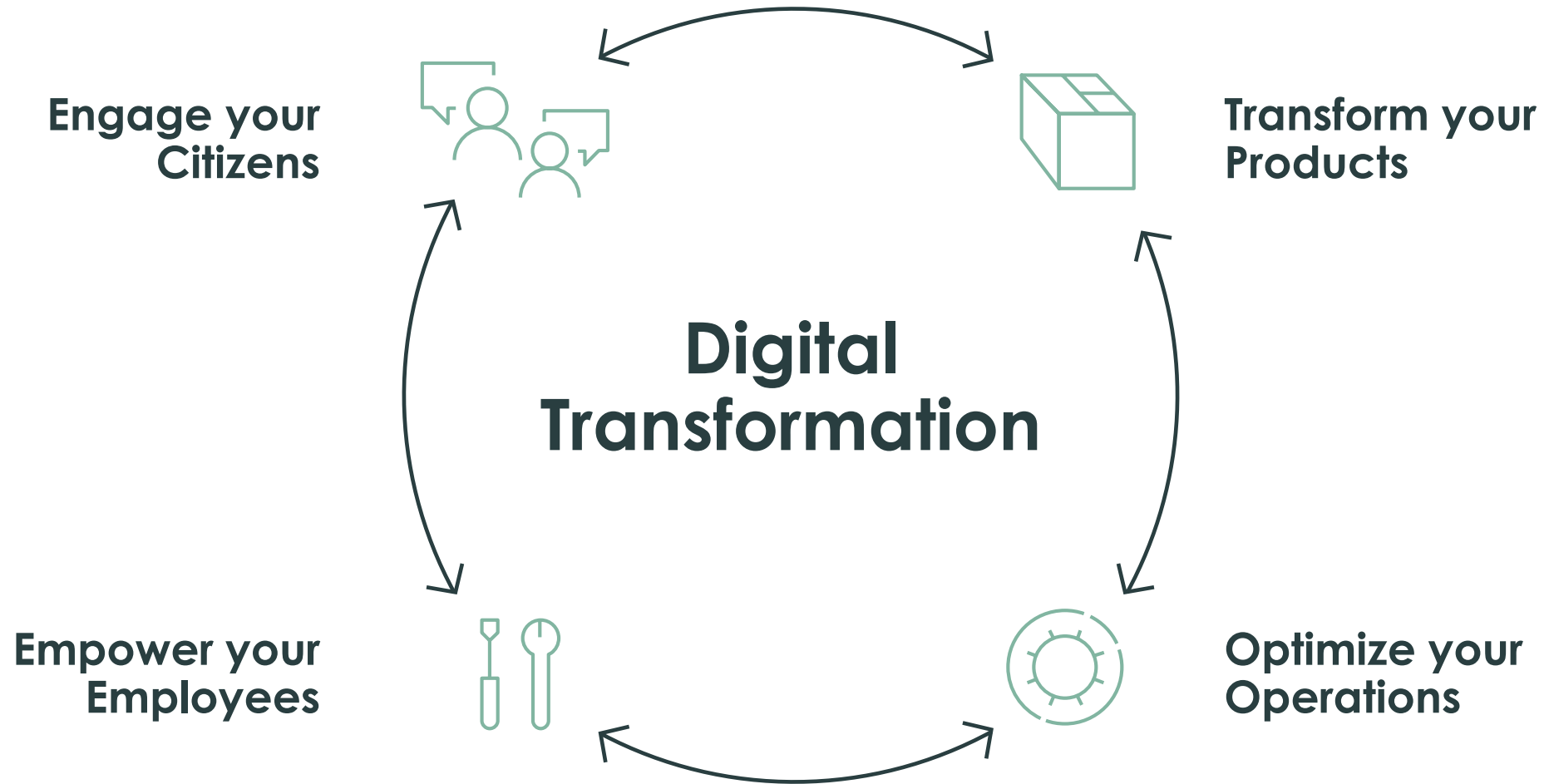
Trends and drivers
Citizen engagement, data-driven decisions, and mobility

By 2020

|		
30B devices with unique IP addresses connected to the Internet**	**5,200** GBs of data for every person on Earth**	**5B+** people, two-thirds of the world's population, using social networks*
40% of government employees using multiple forms factors*	**80%** of people working outside the office*	**50%** of BDA investment focusing on citizen service, public health, and Smart Cities*

*WSJDigitalNetwork; **EMC Digital Universe with Research & Analysis by IDC

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Government challenge innovation

Develop, maintenance, and services spending: Government-wide

8.2%

20.9%

70.9%
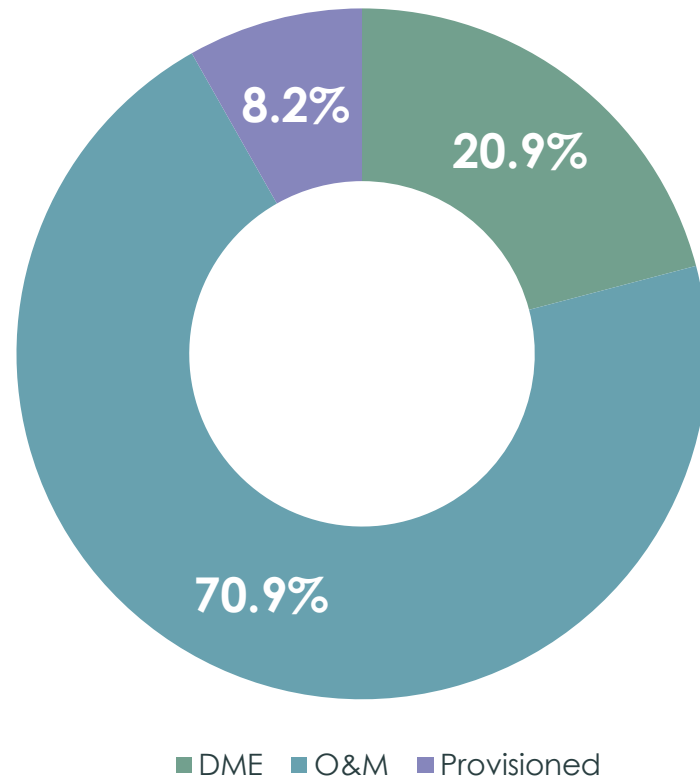
■ DME ■ O&M ■ Provisioned

This pie chart displays the percent of the government-wide information technology funding spent on the following services:

Non-provisioned DME
Development, modernization, and enhancement spending on non-provisioned services.

Non-provisioned O&M
Operations and maintenance spending on non-provisioned services.

Provisioned Services
Total spending on DME and O&M provisioned services.

Analyze and make mission decisions

Execute mission objectives

Defense mission lifecycle

Acquire intelligence and sensor information

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Challenges facing Defense today

Siloed, disparate cloud environments

Lack of agility in deploying new capabilities

Fractured security approaches

Inability to leverage aggregated mission data

Today's Defense Mission demands agility

Ingest data at scale from the tactical edge

Analyze data in real-time

Deploy new capabilities and leverage AI to make decisions rapidly

Store data for future insights

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Multi-device, Multi-sense

Artificial Intelligence

Serverless

Intelligent cloud

Intelligent edge

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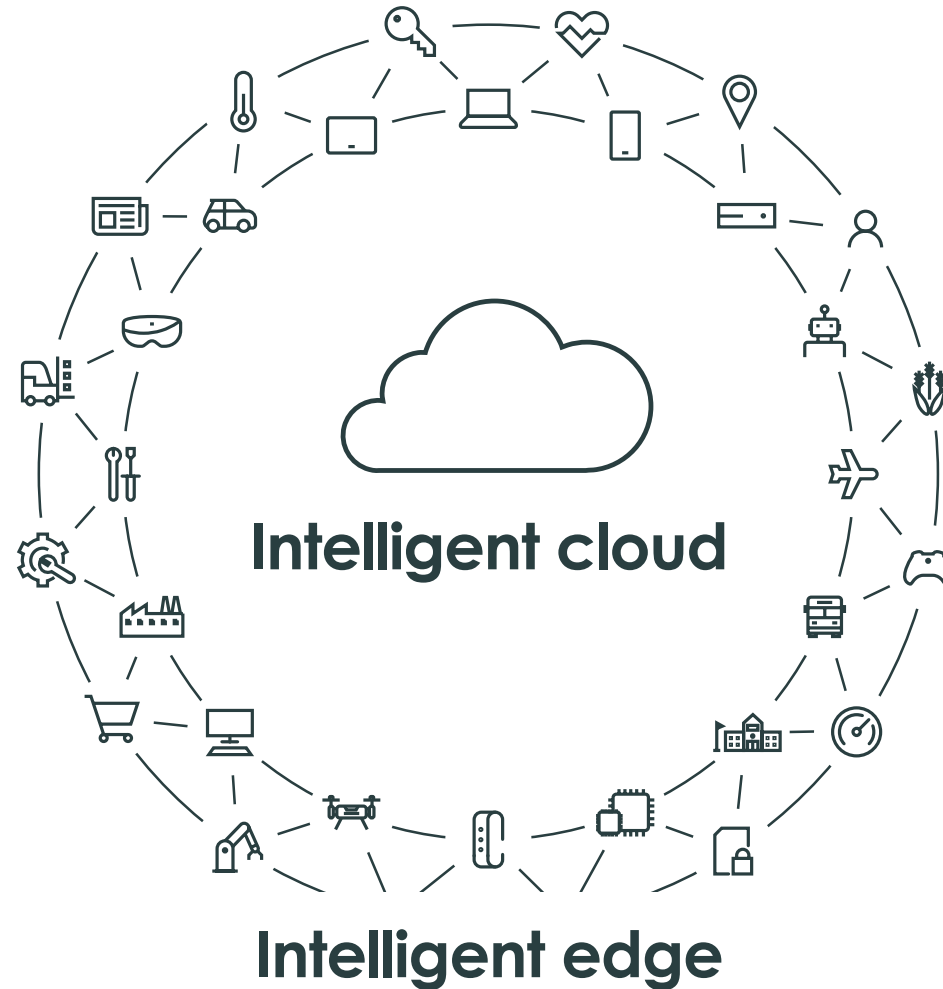
Service degradation and outages hit profits and reputation

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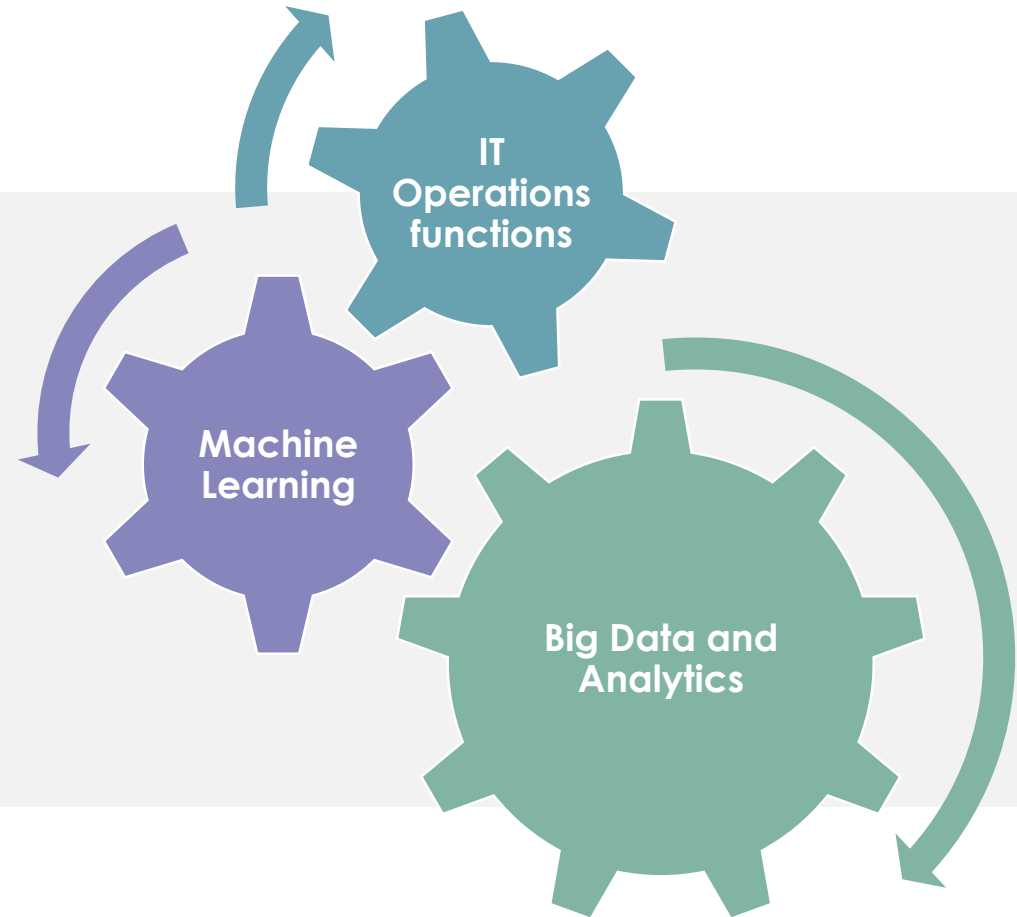
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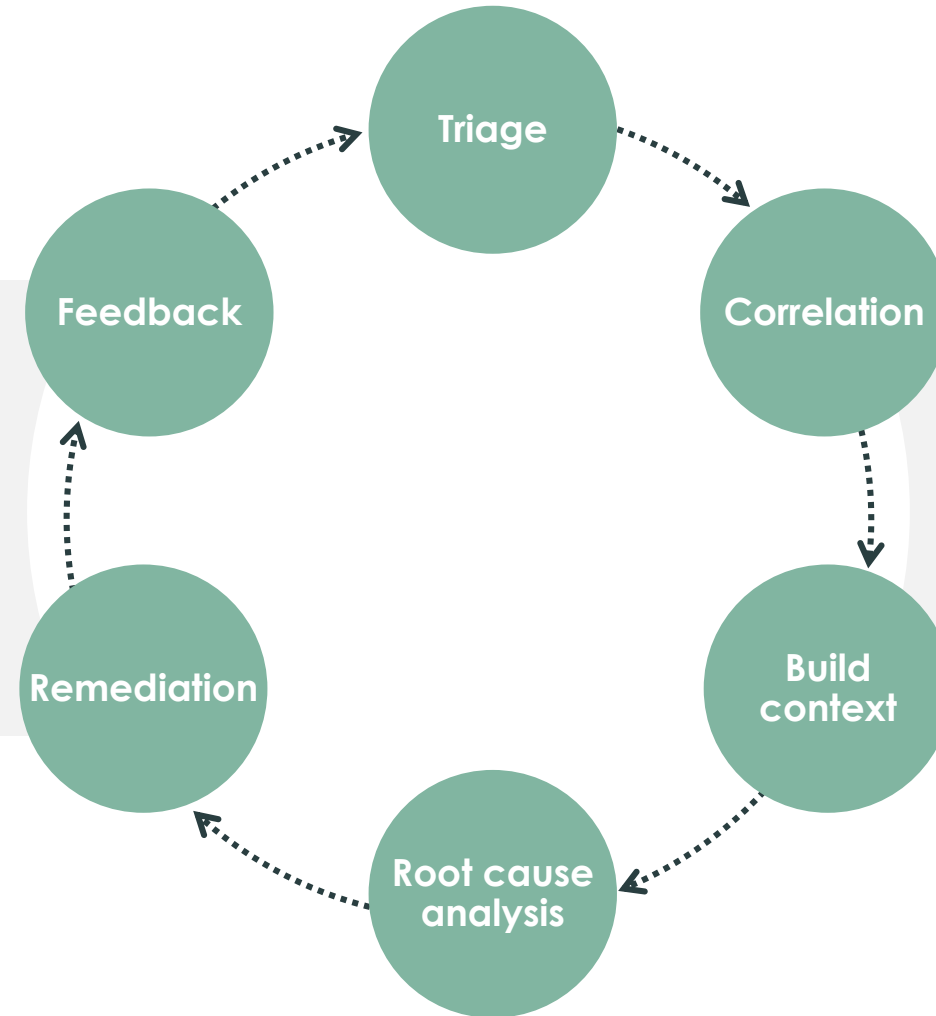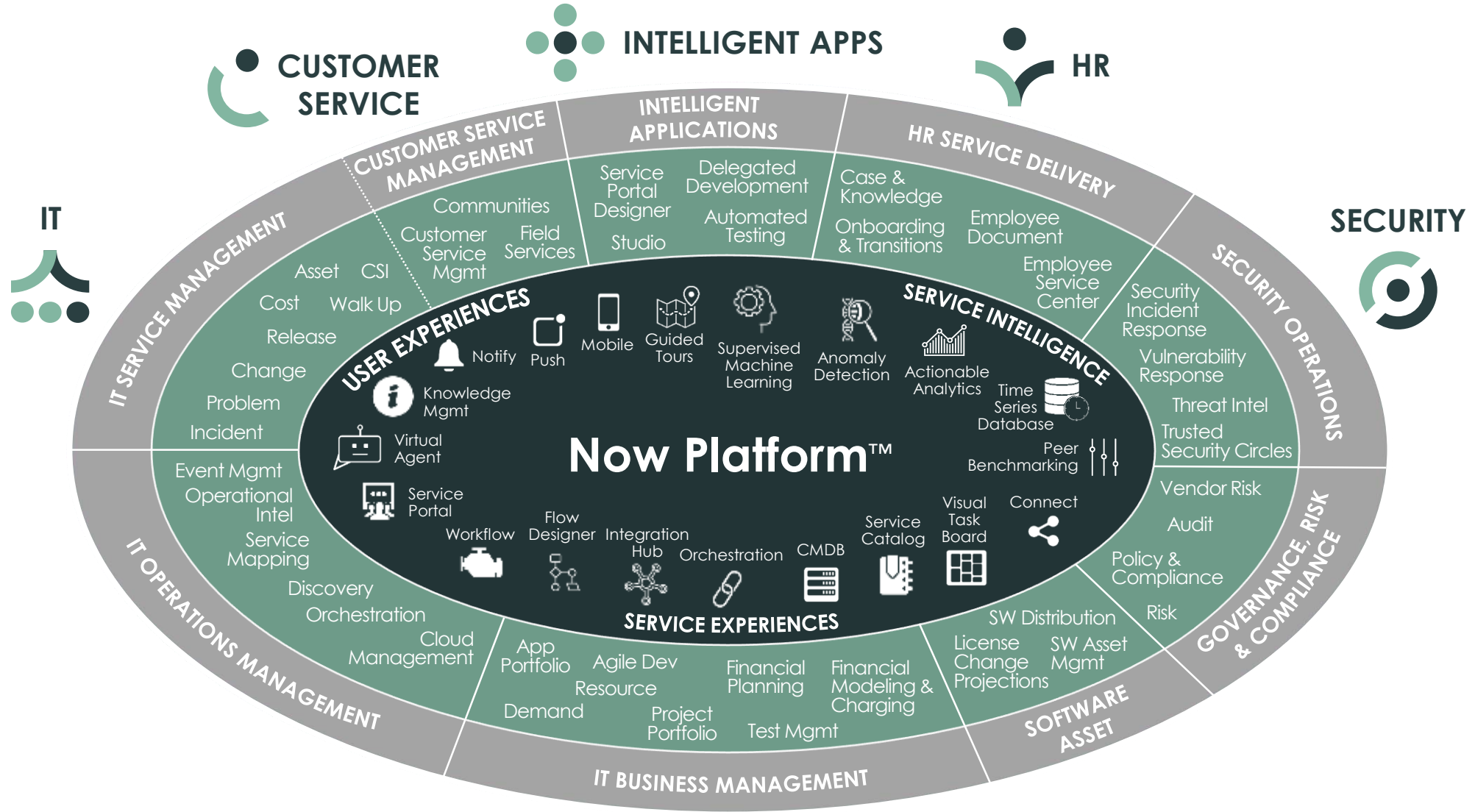
What is AIOps?

Artificial Intelligence for IT Operations

"

AIOps platforms combine big data and machine learning to support IT operations functions.

Gartner

IT Operations functions

Machine Learning

Big Data and Analytics

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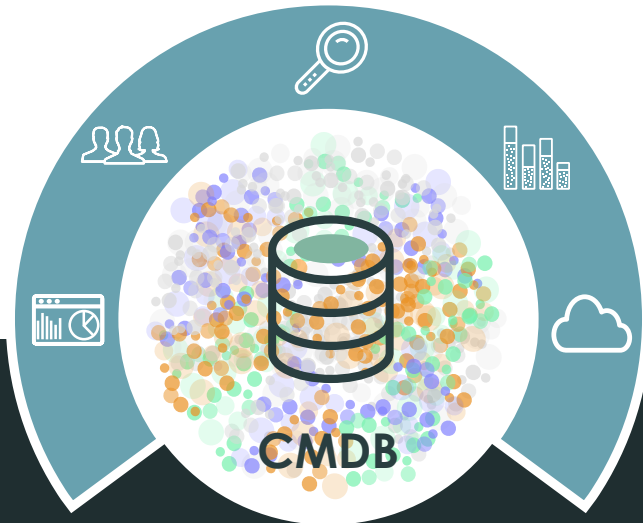The foundation for consumer-like services

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End-to-end solution

For business services deployed on-premises or cloud…

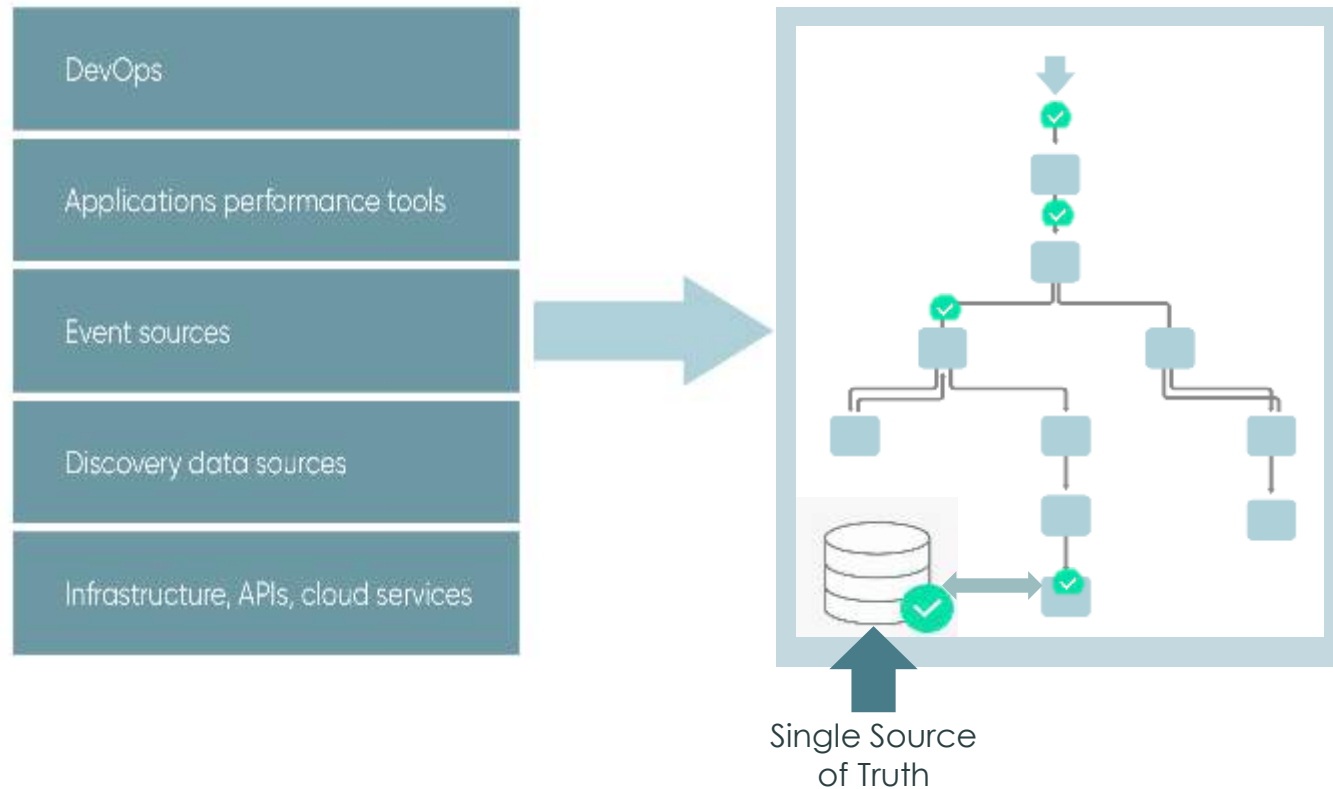**Visibility across operations estate and all software**

Health of business services, with AIOps

Optimization of cloud and software spend

CMDB

Make operational decisions in the context of your business service

Service-level visibility

DevOps

Applications performance tools

Event sources

Discovery data sources

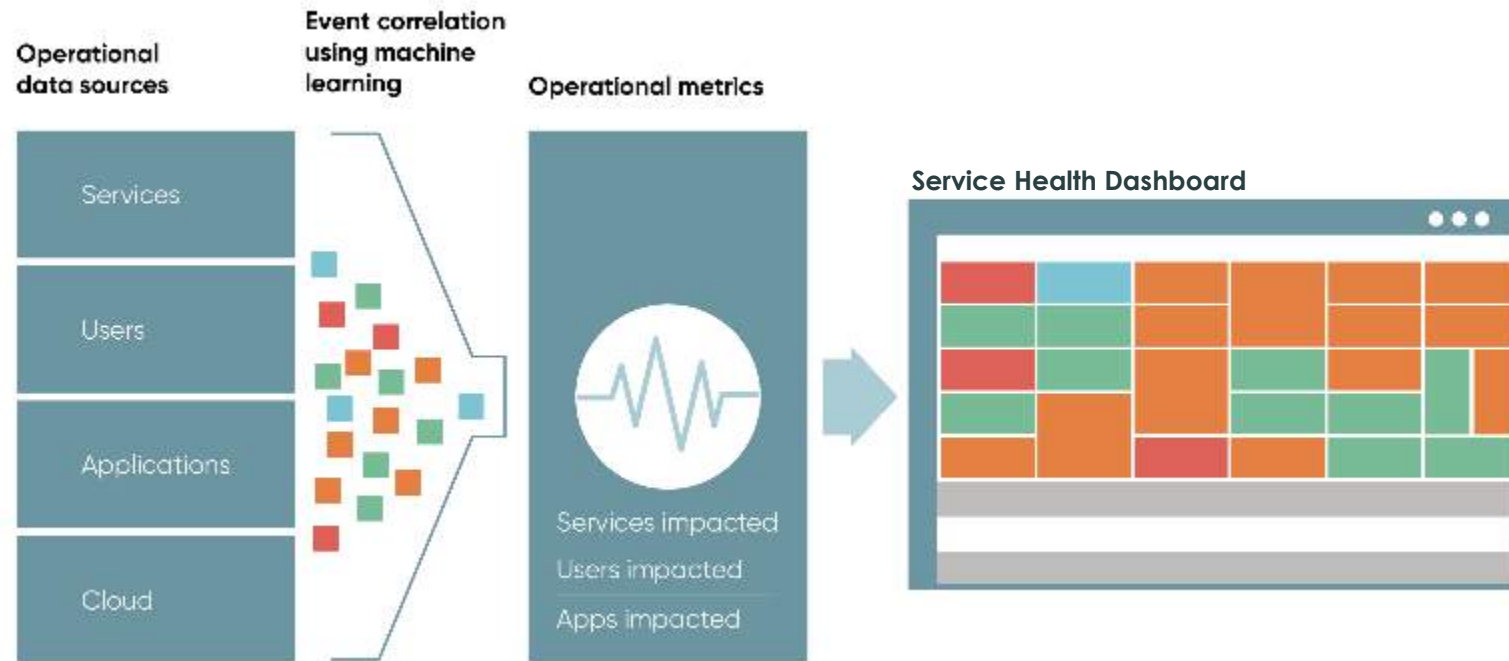Infrastructure, APIs, cloud services

Single Source
of Truth

Outcomes

Get continuously optimized
view of services

Detect and remediate service
drift (e.g., a known change
or an unplanned change)

Automatically documents processes
with post-incident review

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Deliver high-performance business services

Operational data sources
- Services
- Users
- Applications
- Cloud

Event correlation using machine learning

Operational metrics

Services impacted
Users impacted
Apps impacted

Service Health Dashboard

Outcomes

Identify early warning of potential service outages

Improve end-user satisfaction with fewer service disruptions

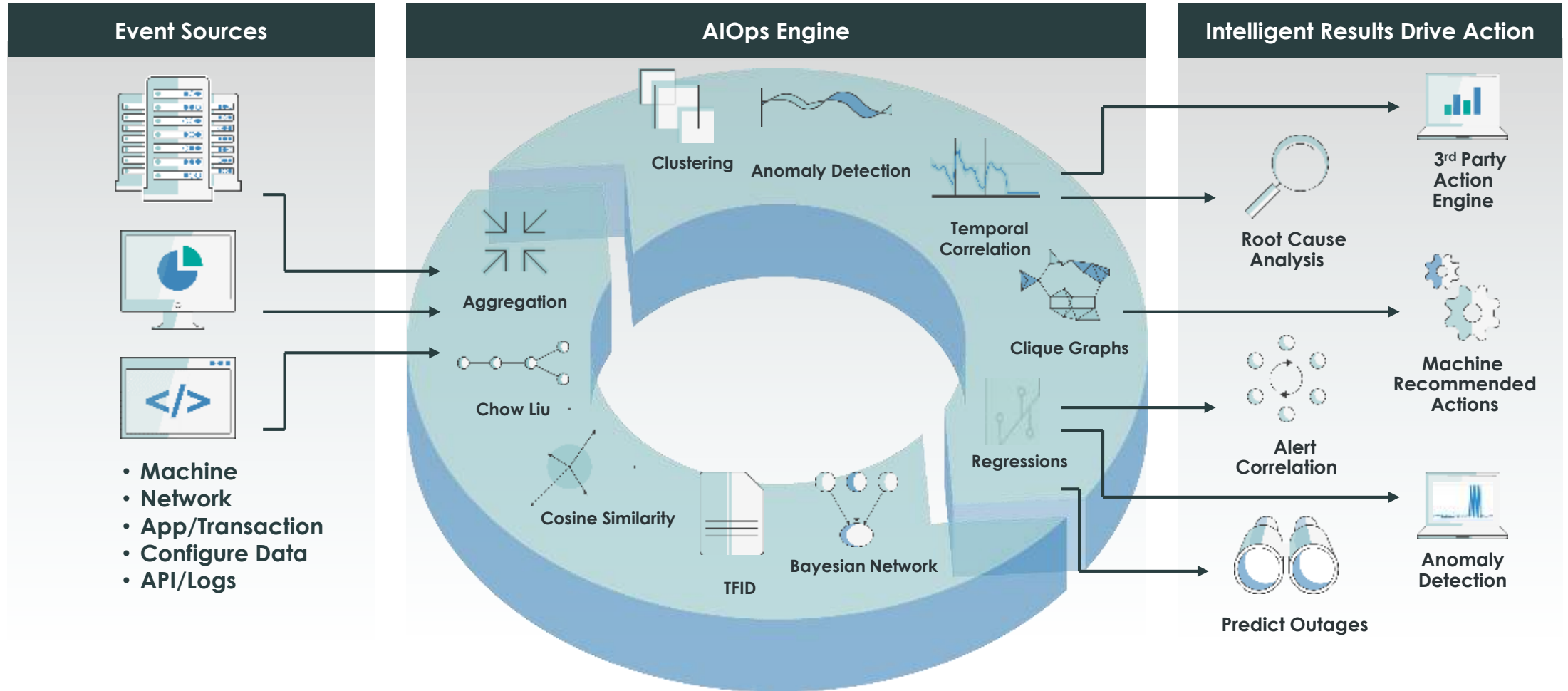Identify root cause of issues quickly. Reduce event noise by 99%

Get a better operations experience driven by service-level intelligence
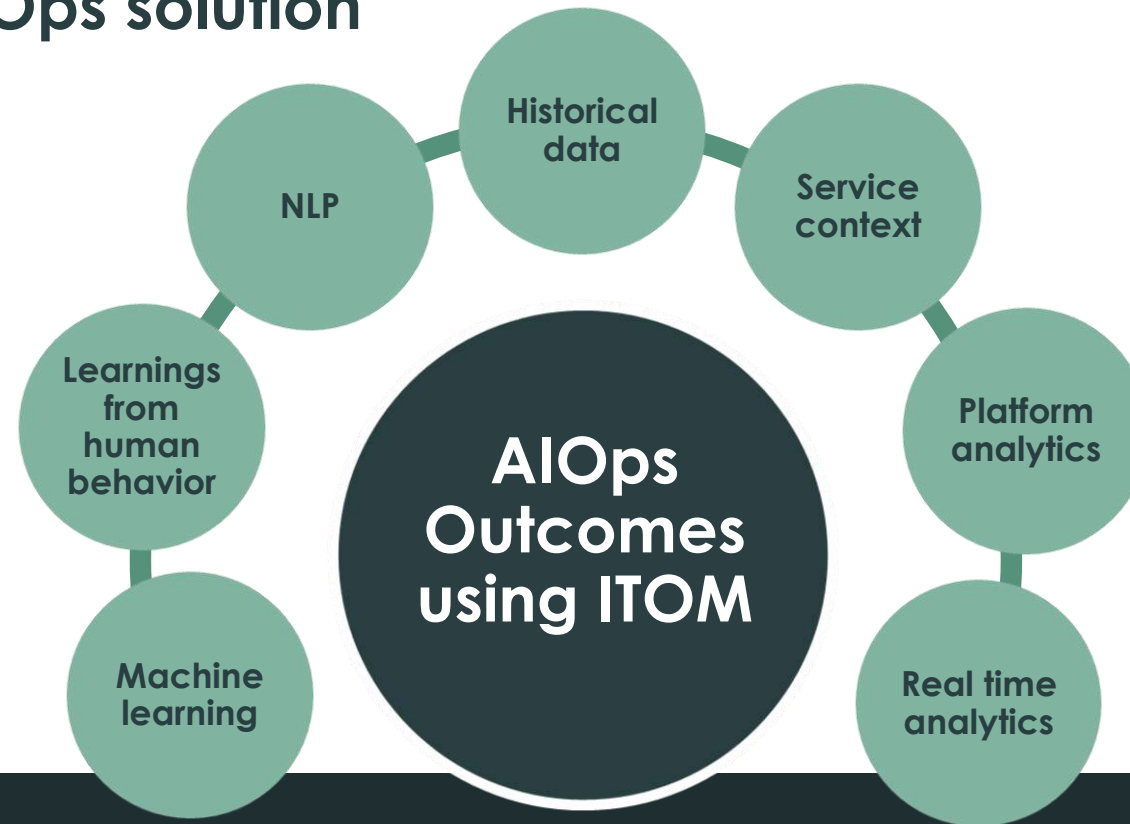
❝

We are proactive and have reduced the number of high-impact incidents.

Time Warner

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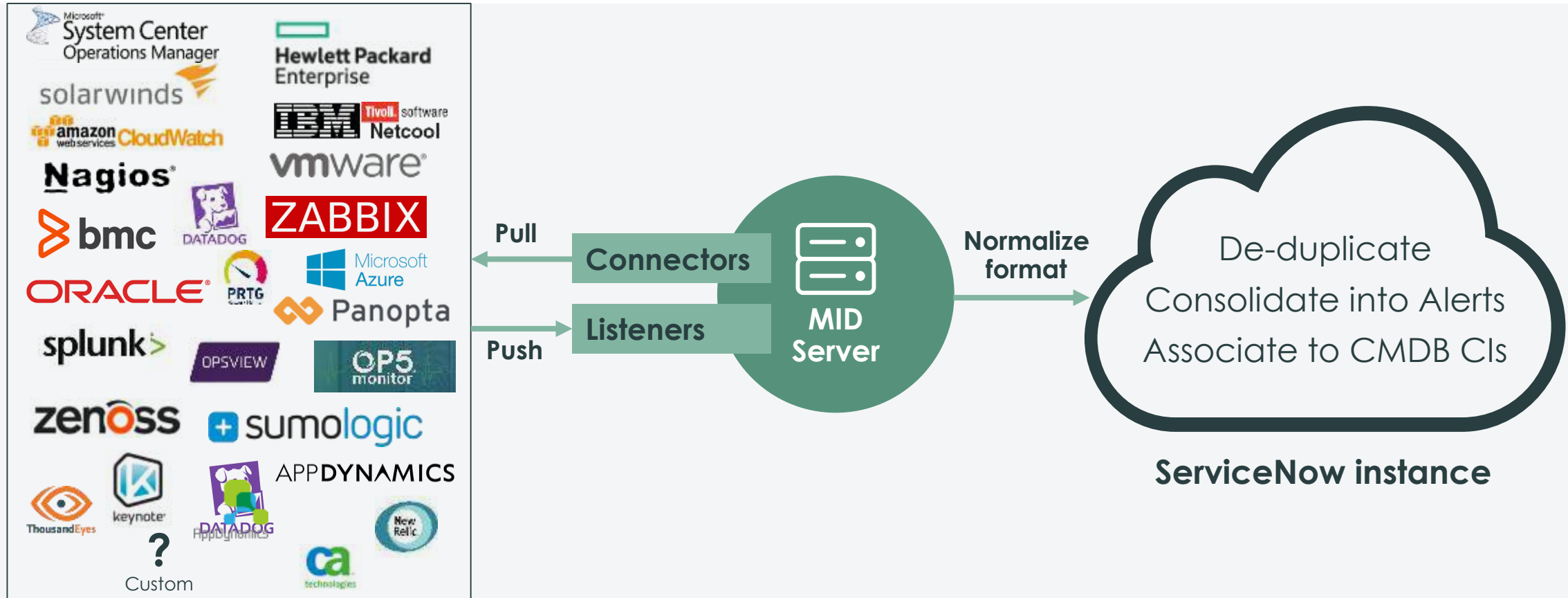**Digital Transformation**
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AIOps methods and applications

Event Sources

- Machine
- Network
- App/Transaction
- Configure Data
- API/Logs

AIOps Engine

Clustering
Anomaly Detection
Aggregation
Temporal Correlation
Chow Liu
Clique Graphs
Cosine Similarity
TFID
Bayesian Network
Regressions

Intelligent Results Drive Action

3rd Party Action Engine
Root Cause Analysis
Machine Recommended Actions
Alert Correlation
Anomaly Detection
Predict Outages

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Comprehensive AIOps solution

Historical data

NLP

Service context

Learnings from human behavior

Platform analytics

AIOps Outcomes using ITOM

Machine learning

Real time analytics

Better experiences using guided flows, intuitive interfaces, one console

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Ingest event signals

Pull → Connectors

Push → Listeners

MID Server

Normalize format →

De-duplicate
Consolidate into Alerts
Associate to CMDB CIs

ServiceNow instance

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Correlate alerts using machine learning
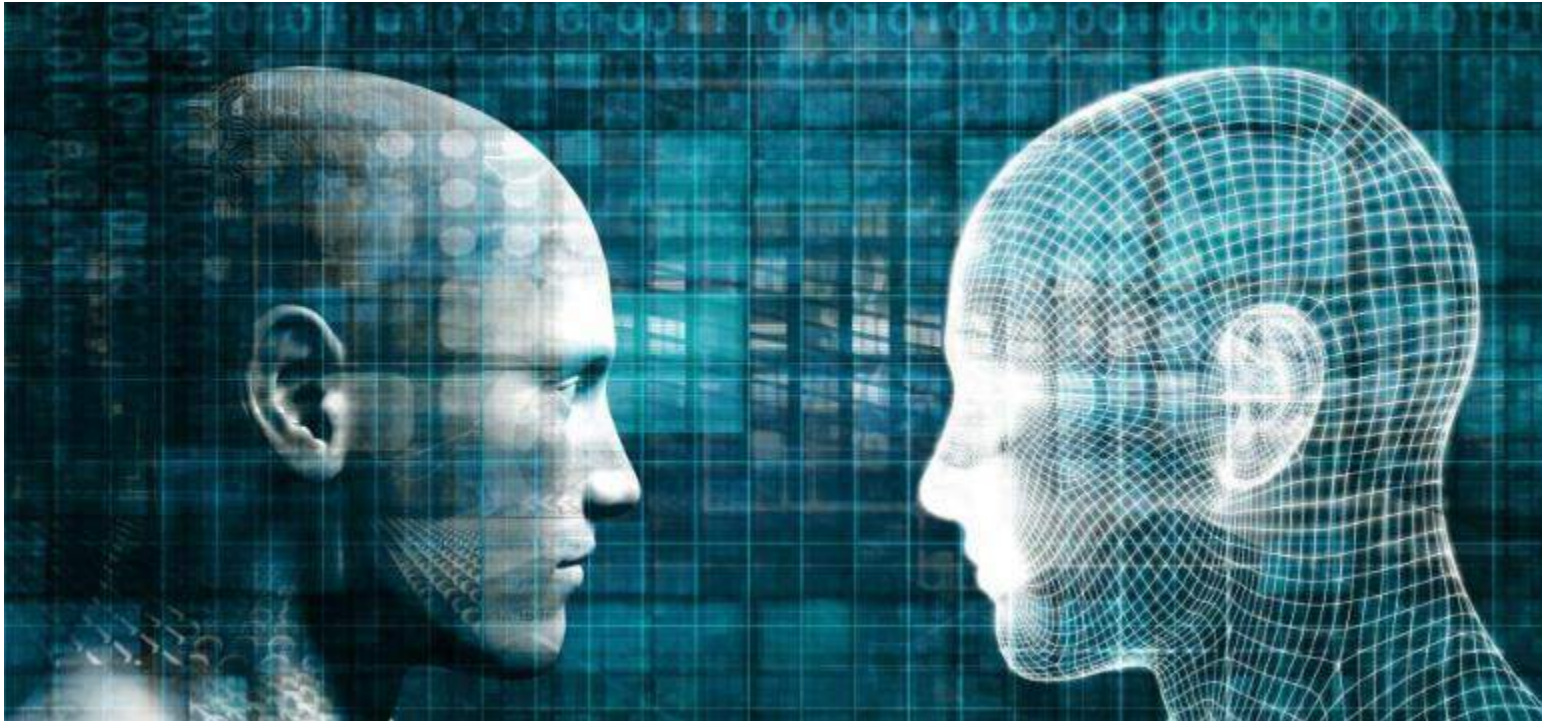
- Human-defined correlation

- Semi-supervised learning

- Temporal analysis

- Topological analysis

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Prioritize by business impact

Quickly determine at-risk business services
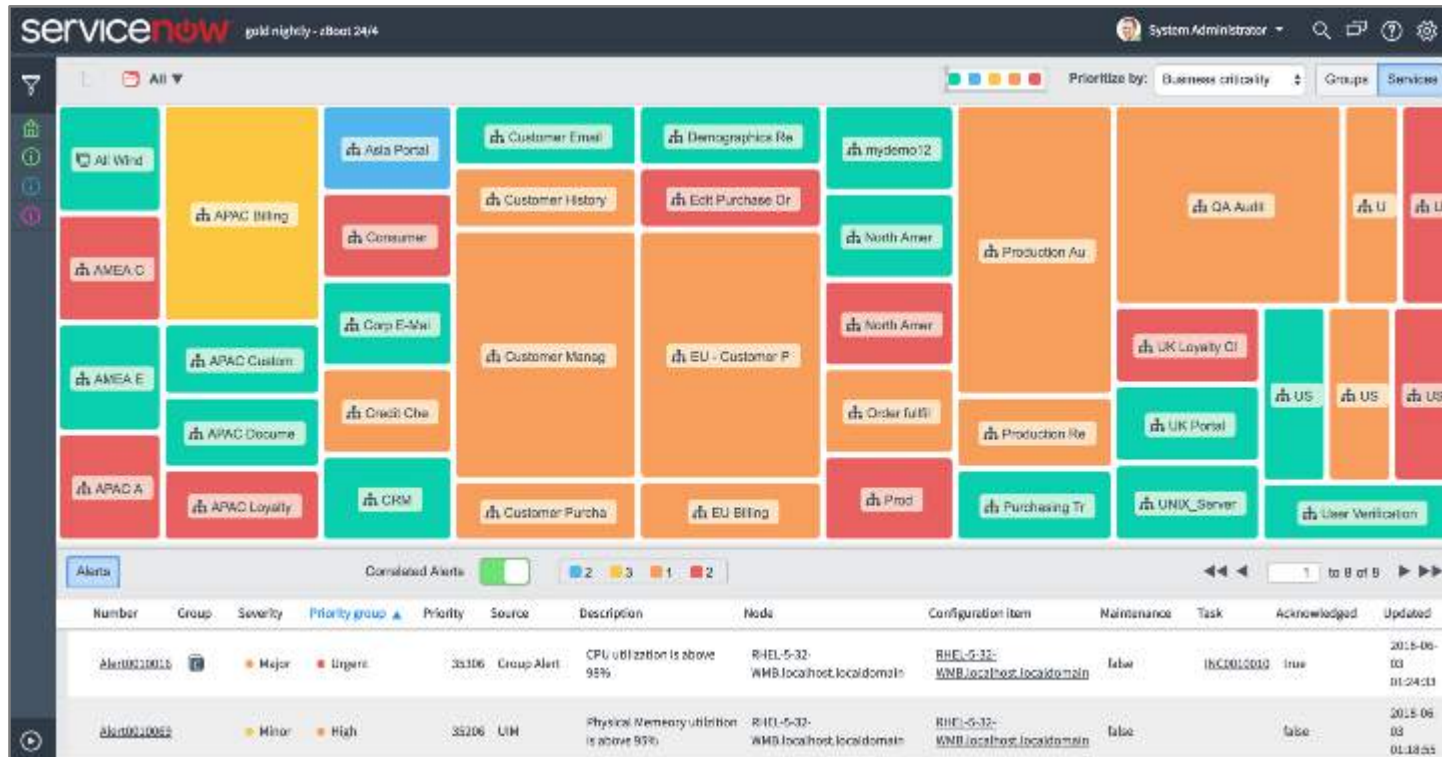
IT Operations Management—Event Management

Outcomes

Increases insight to the status of business services through a single dashboard

Drive service uptime

Diagnoses and pinpoints issues

80%
Reduction in outages
TransAlta

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Deliver superior outcomes through AIOps with service-context

Now on Now

98%* reduction in event noise

67%* reduction in P1 and P2 incidents

TransAlta

50–80%* reduction in outages and service degradation

Accelerated remediation
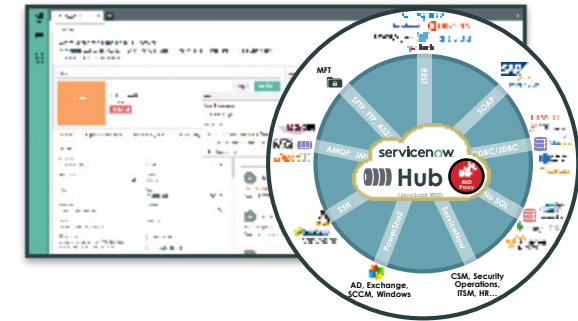
- Real-time analytics
- Historical data
- Service context
- Learnings from human behavior
- Natural Language Processing

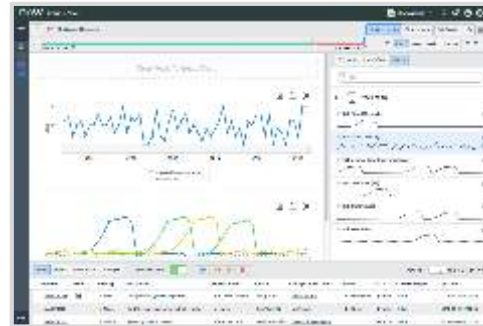## Better experiences using guided flows, intuitive interfaces, one console

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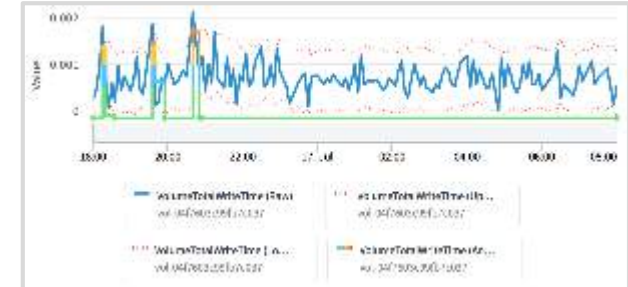
AIOps outcomes: Examples
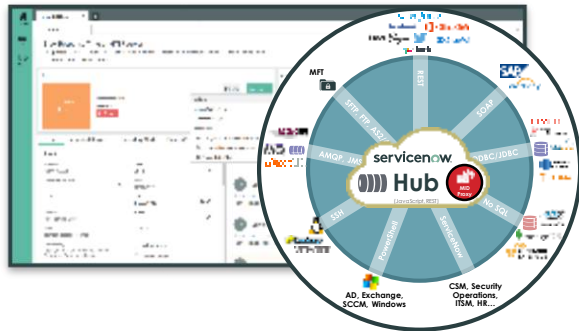
Materially reduce MTTR

Fix widespread performance issues

Anomaly detection

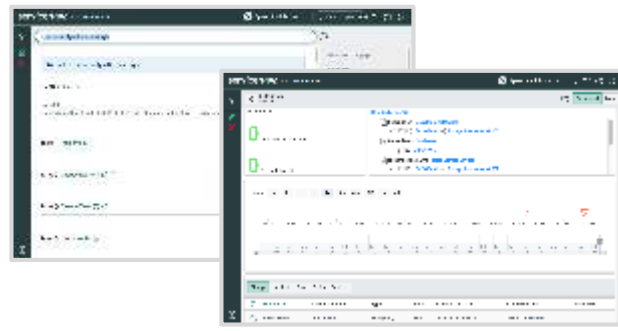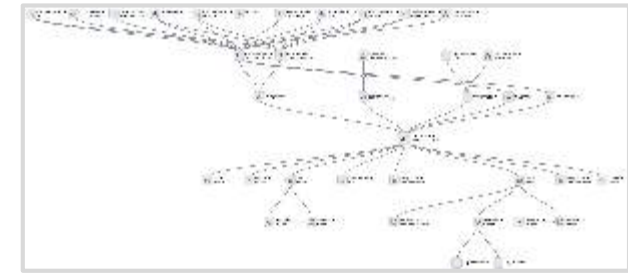**Automated remediation**

NPL driven smart searches

Reduced noise in network dependencies

Remediate via automation
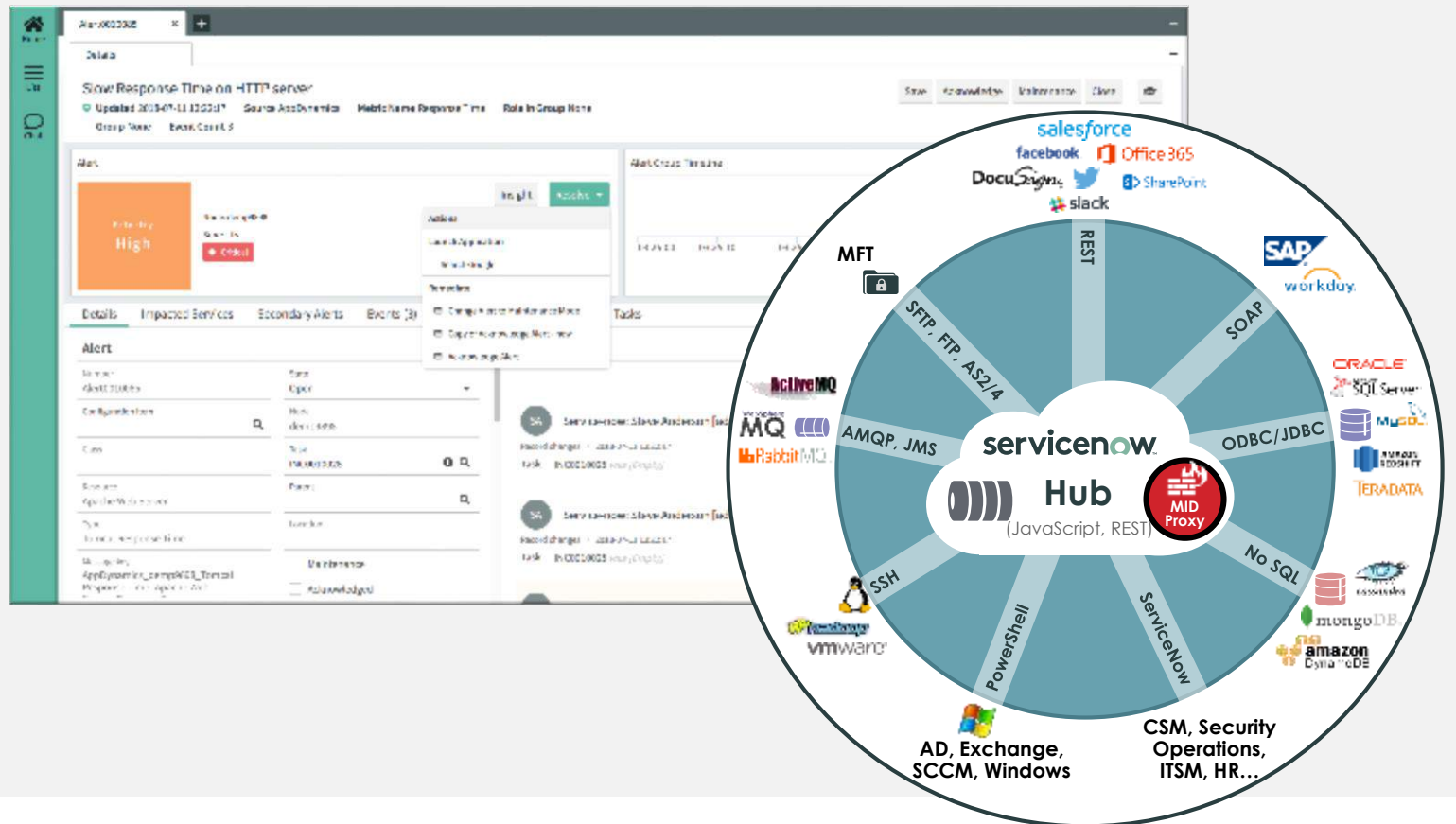
- Leverages ServiceNow platform Flow Designer and IntegrationHub to drive actions within and outside of ServiceNow
  - Gather further details, e.g., configuration, process info
  - Open/close Incident records
  - Restart/reset components
- Based on alert criteria, system can automatically initiate actions
- Relevant actions presented to Operator to initiate manually and observe results

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Top takeaways

1

Digital transformation necessitates more scale, including management scale.

2

AIOps amplifies human operational capacity to address that demand.

3

AIOps can reduce noise, prioritize what matters, speed root cause analysis and drive remediation.

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Planetary scale

- **54 Azure regions**
- **27k miles of undersea fiber**
- **78k miles of inner-city fiber**
- **4500+ Peering locations**
- **150+ Edge sites**

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Trust in the cloud

US Gov
| Moderate JAB P-ATO | High JAB P-ATO | DoD DISA SRG Level 2 | DoD DISA SRG Level 4 | DoD DISA SRG Level 5 | SP 800-171 | FIPS 140-2 | Section 508 VPAT | ITAR | CJIS | IRS 1075 |

Global
| ISO 27001 | ISO 27018 | ISO 27017 | ISO 22301 | SOC 1 Type 2 | SOC 2 Type 2 | SOC 3 | CSA STAR Self-Assessment | CSA STAR Certification | CSA STAR Attestation |

Regional
| Argentina PDPA | EU Model Clauses | UK G-Cloud | China DJCP | China GB 18030 | China TRUCS | Singapore MTCS | Australia IRAP/CCSL | New Zealand GCIO | Japan My Number Act | ENISA IAF | Japan CS Mark Gold | Spain ENS | Spain DPA | India MeitY | Canada Privacy Laws | Privacy Shield | Germany IT Grundschutz workbook |

Industry
| PCI DSS Level 1 | CDSA | MPAA | FACT UK | Shared Assessments | FISC Japan | HIPAA/ HITECH Act | HITRUST | GxP 21 CFR Part 11 | MARS-E | IG Toolkit UK | FERPA | GLBA | FFIEC |

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The modern data estate

AI

BI

Operational databases | Data warehouses | Data lakes
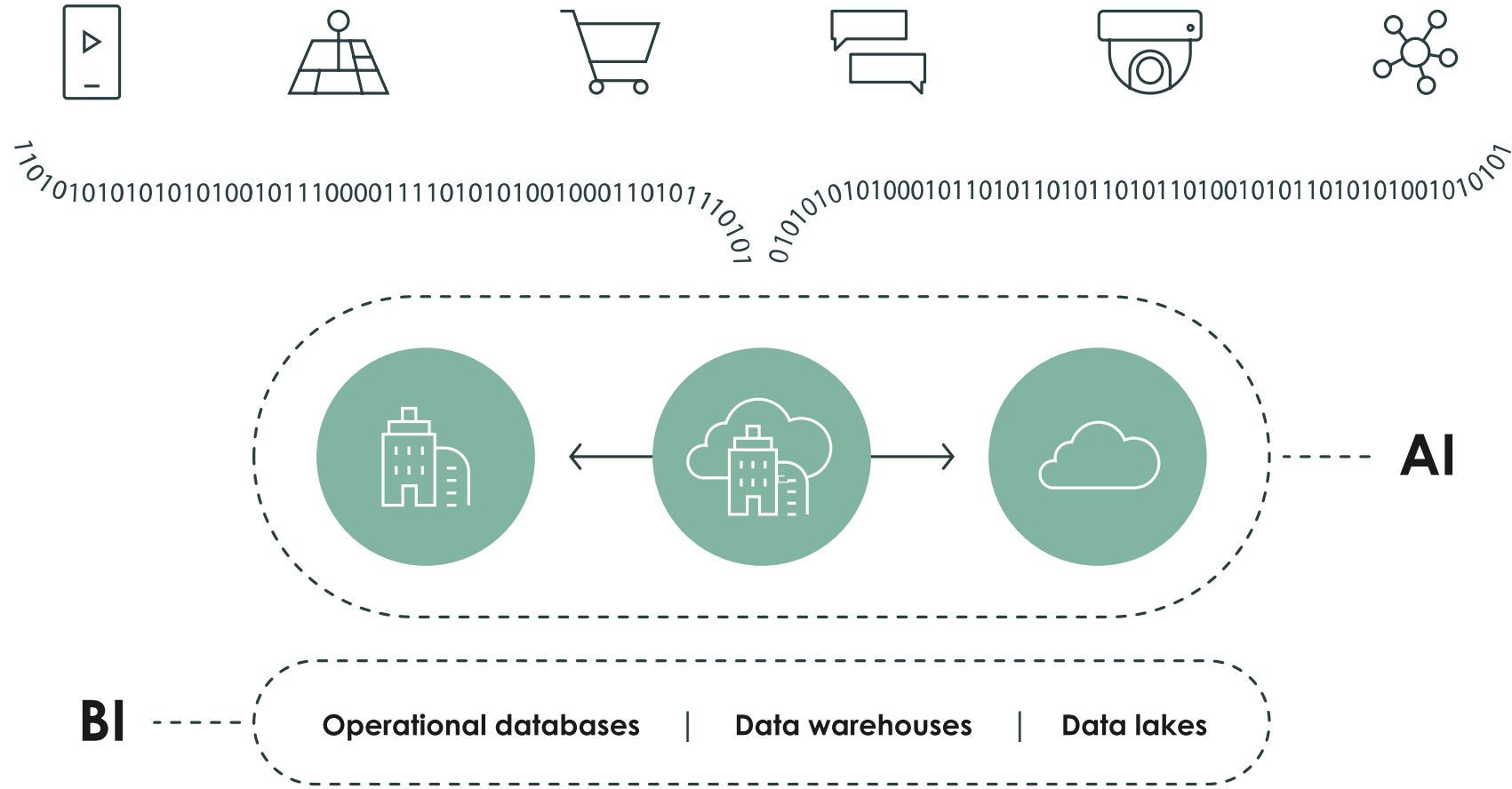
Applications and infrastructure

Data and AI

Private versus public cloud	→	Distributed hybrid cloud
Virtualization	→	Microservices and containers
Disparate databases	→	Connected data estate
Big data and machine learning	→	Cognitive Services and AI

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Leveraging Data and AI

Data		AI		BI
Data modernization on-premises		AI apps and agents		Self-service BI
Data modernization to the cloud		Knowledge mining		On-premises BI
Globally distributed data		Machine learning		Apps with intelligence
Cloud scale analytics				
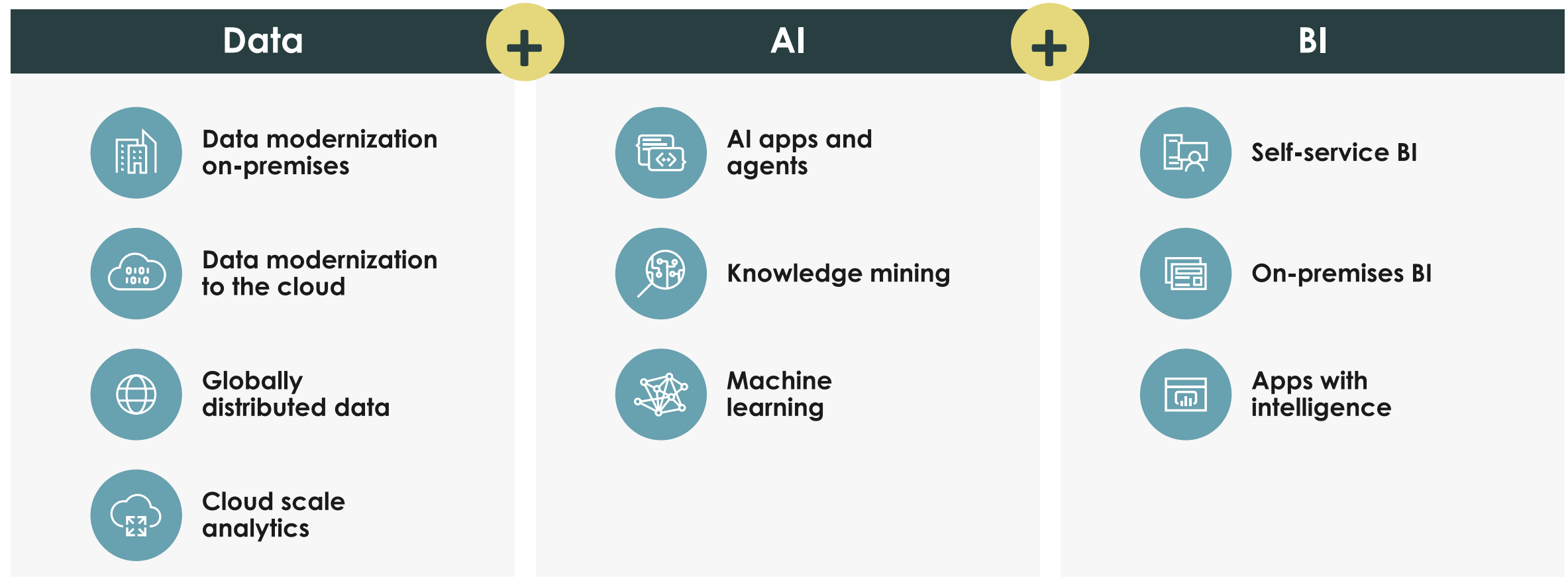
Common Identify

Data Platform

Management + Security

Unified Cloud Platform

Apps

Cloud

Azure Stack

Intelligent Edge

Azure Sphere
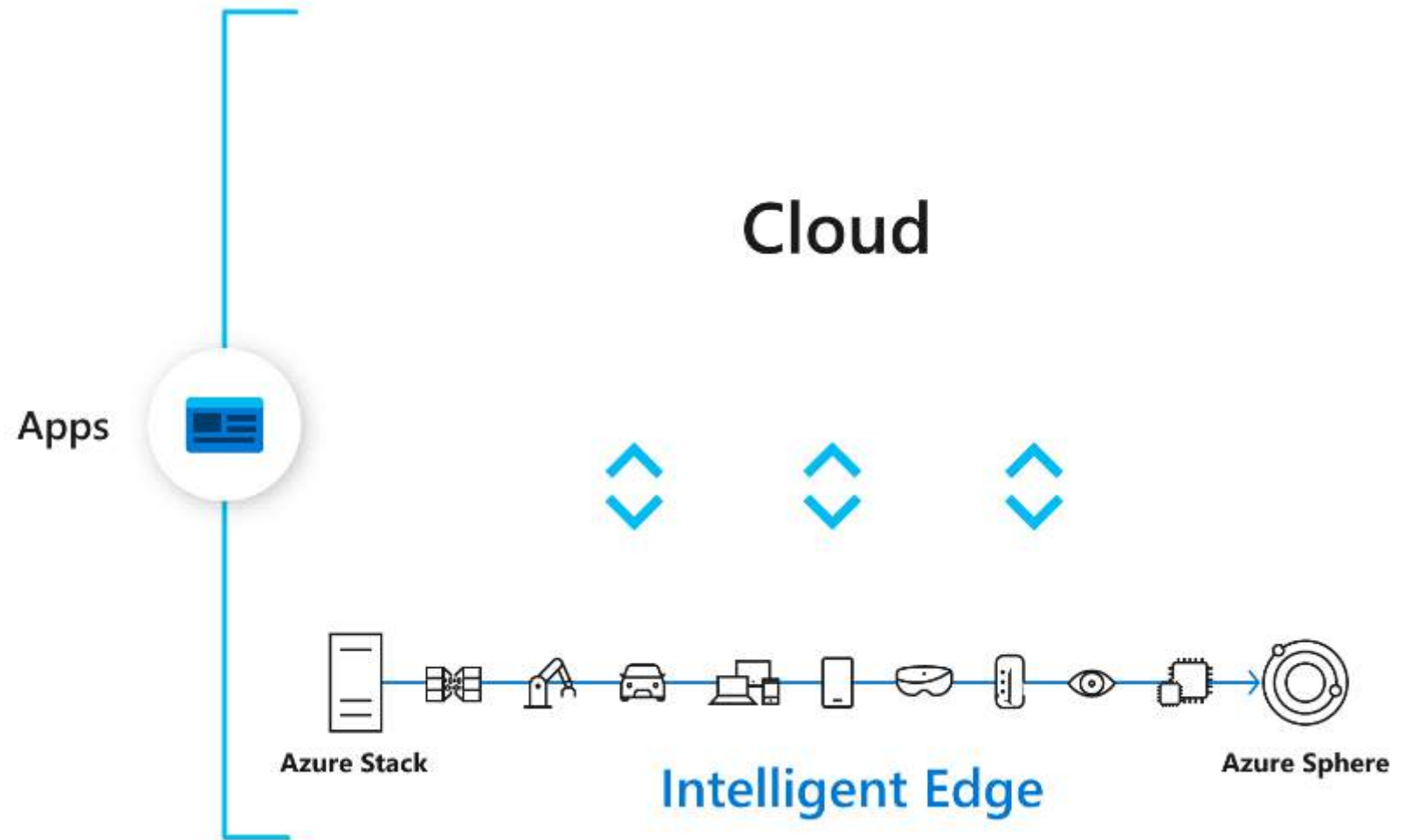
SeviceNow & Microsoft working together via the Azure Marketplace

Accelerate digital transformation, securely modernize services

Meets FedRAMP High and DoD Impact Level 5 standards