The Importance of Monitoring for ITSM and DevOps

Visibility, transparency and IT transformation

Presented for ITSM Academy by

eG Innovations
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DevOps Campus
…at ITSM Academy

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Total Performance Visibility
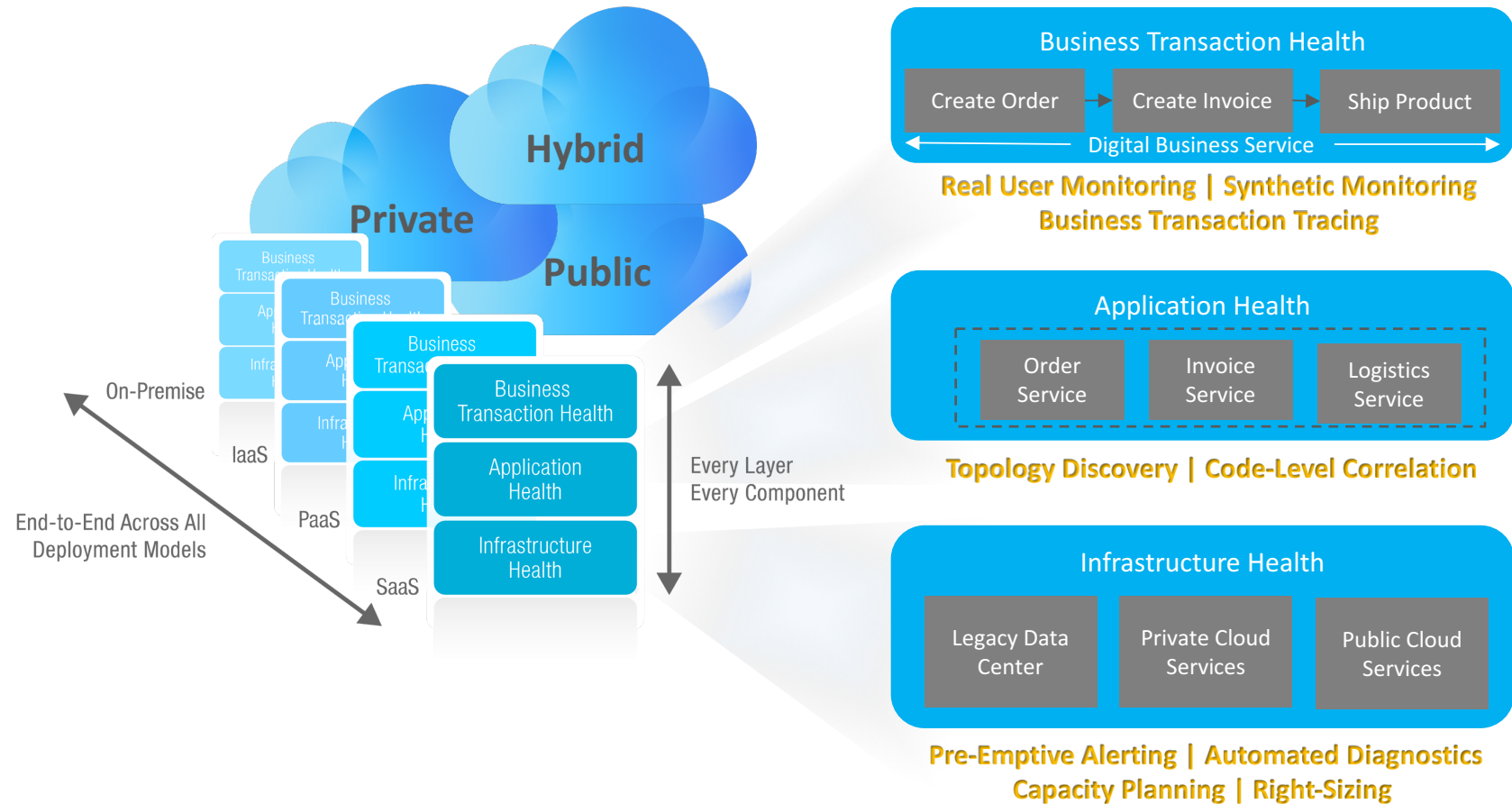
About eG Innovations

eG Innovations is a provider of enterprise-class performance management products that provide complete visibility across **every layer and every tier** of dynamic & complex, **_cloud, virtual_** and physical IT environments to **reliably deliver mission-critical _business services_**.

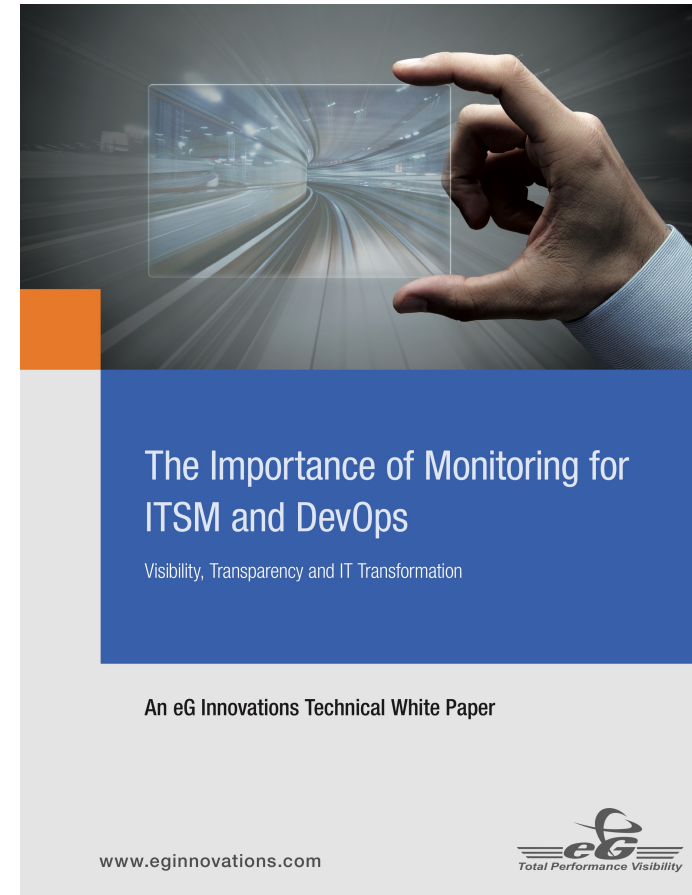**Worldwide Locations**

What we do…

Agenda

- What is IT Transformation?

- What is IT monitoring?

- Role of IT monitoring in IT transformation

- Leveraging IT monitoring for organizational success

- Conclusion

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White Paper

- A companion White Paper is available to all participants

What is IT transformation?

The importance of monitoring for ITSM and DevOps

Types of organizational change

- **Developmental**
  - Improves what you are currently doing rather than creates something new

- **Transitional**
  - Replaces "*what is*" with something completely new; requires designing and implementing a "*new state*"

- **Transformational**
  - Future state is unknown when you begin; determined through trial and error as new information is gathered
  - People and culture must change to implement it successfully; new mindsets and behaviors are required

[1]Change Leader's Handbook

Transformational change

- Requires shift in organizational culture, behavior and mindsets
- Resulting new state is uncertain at the beginning; emerges as a result of the change effort

Transformational Change[1]	- Wake-up call - Changes in mindsets, culture - Greatest degree of uncertainty
Transitional Change	- Programs / Implementation[2] (business & human objectives met) - Boundaries may be uncertain - Significant stakeholder management
Developmental Change	- Projects / Installation (on-time, on-budget, technical objectives met) - Process adaptation & improvement

Transformation requires an integrated approach to **people, process and tools**

[1]Change Leader's Handbook   [2] Implementation Management Associates, Inc.
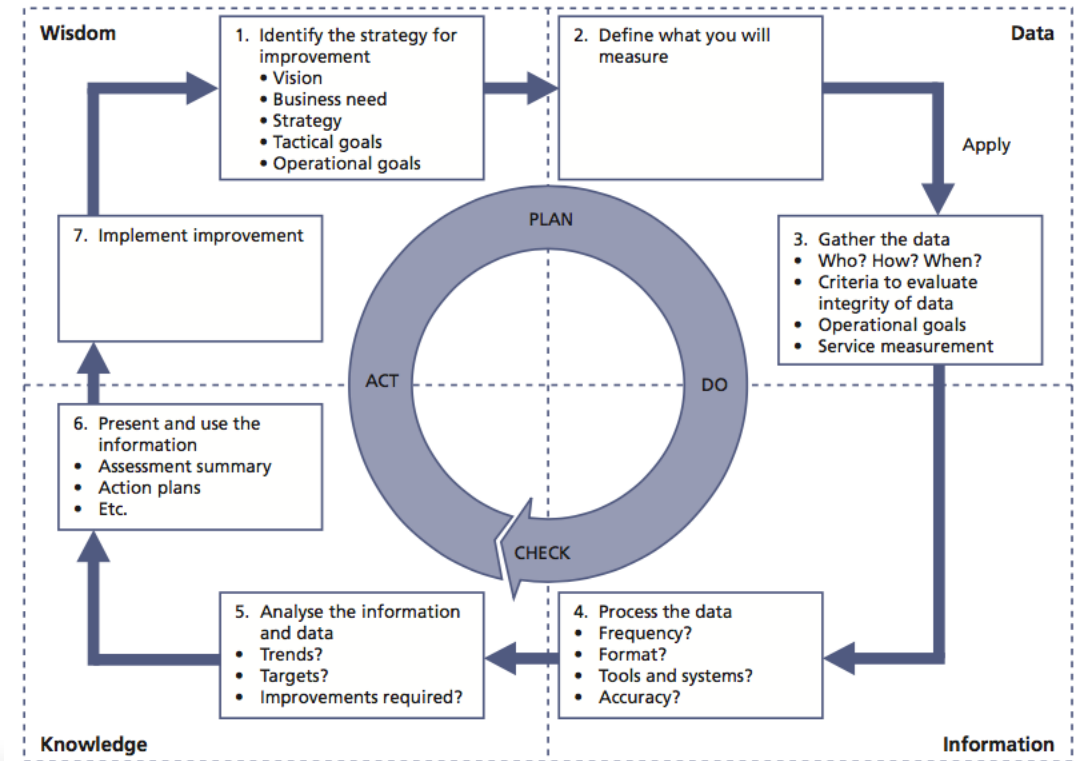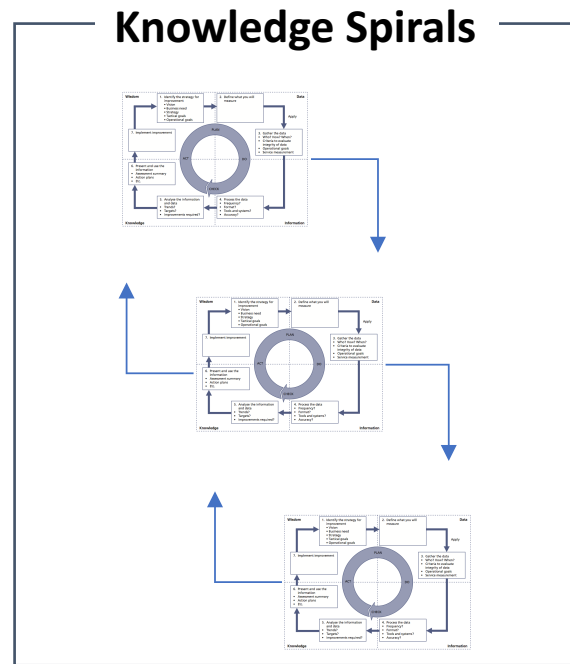
IT transformation

- **ITSM** is about changing mindsets – achieving a services orientation
- **DevOps** is about culture shift – collaboration, feedback and continuous learning

Transformational Change[1]

Transitional Change

Developmental Change

Knowledge Spirals
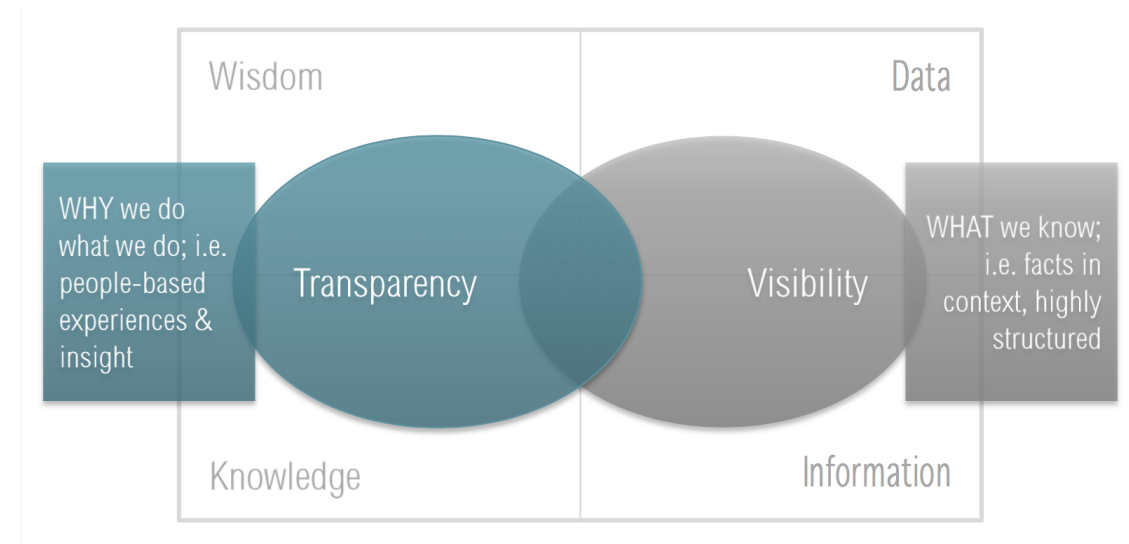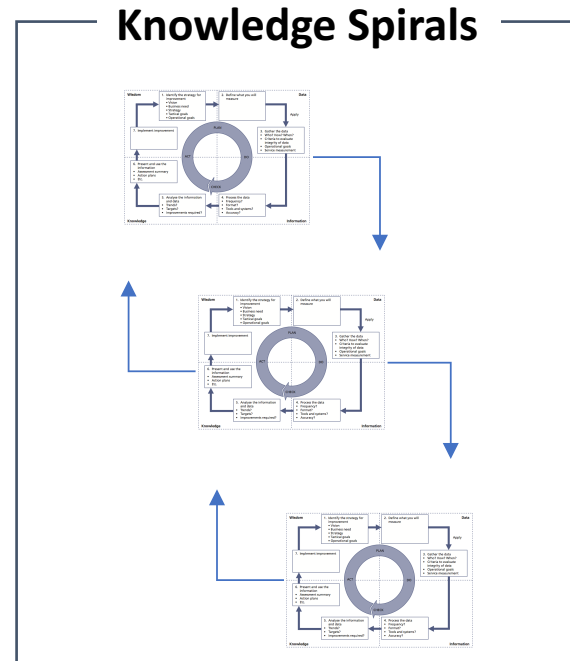
[1]Change Leader's Handbook

Visibility, transparency and IT transformation

- Effective monitoring accelerates the **DIKW cycle**
- DevOps' **amplifying and accelerating feedback** is also dependent on effective monitoring

Transformational Change[1]

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[1]Change Leader's Handbook

IT transformation

- **ITSM** is about changing mindsets – achieving a services orientation
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"The bottom line is that CIOs need to get a grip on the concept or risk being perceived as mush-mouthed jargonizers"
– CIO Insight

TechTarget | **Search CIO**

IT transformation is a complete overhaul of an organization's information technology (IT) systems. IT transformation can involve changes to network architecture, hardware, software and how data is stored and accessed. Informally, IT transformation may be referred to as "_rip and replace_."

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IT transformation

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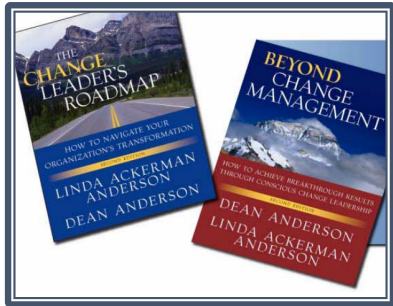

"...many large IT implementations fail because they require a mindset and culture change that does not occur, i.e., the new systems <u>require people to share information across strongly held boundaries or put the needs of the enterprise over their own turf agendas</u>."

Linda Ackerman Anderson; Dean Anderson. The Change Leader's Roadmap: How to Navigate Your Organization's Transformation (J-B O-D (Organizational Development)) (Kindle Location 142). Kindle Edition.

What is IT transformation?

Organizational Development

Scope: Strategies, structures, processes, people, culture, and other features of organizational life

- A system-wide process
- Values-Based
- Collaborative
- Based on behavioral science knowledge
- Focused on adaptive development, improvement and reinforcement
- Improving organizational effectiveness

- **IT transformation is about organizational development, and PEOPLE are at its heart**

- **TRUST is critical to transformation**

- **TRANSPARENCY is critical to trust**

What is IT monitoring?

The importance of monitoring for ITSM and DevOps

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Monitoring is a broad-based activity…

- Monitoring takes place at many different levels and from many different perspectives
  - People
    - Training and development, performance management
  - Process
    - Program/Project Management, Business/IT Process Management
  - **Technology**
    - IT services, applications, infrastructure

Our primary focus today will be on the monitoring of IT services and the associated application and infrastructure technologies.

What technology monitoring does…

Technology monitoring must 'connect the dots' between service abstractions and the underlying technology components…

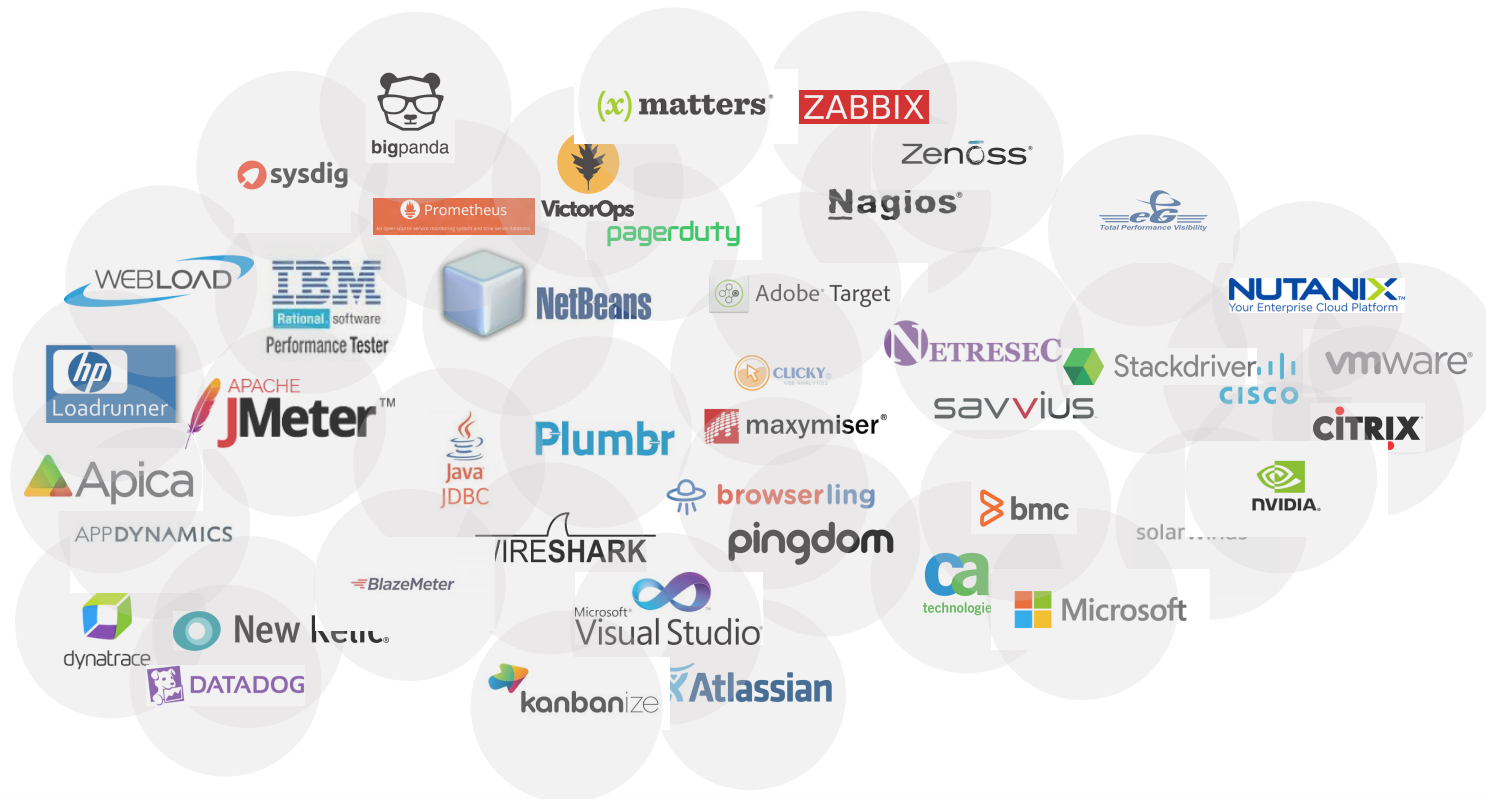…*between* and *within* components.
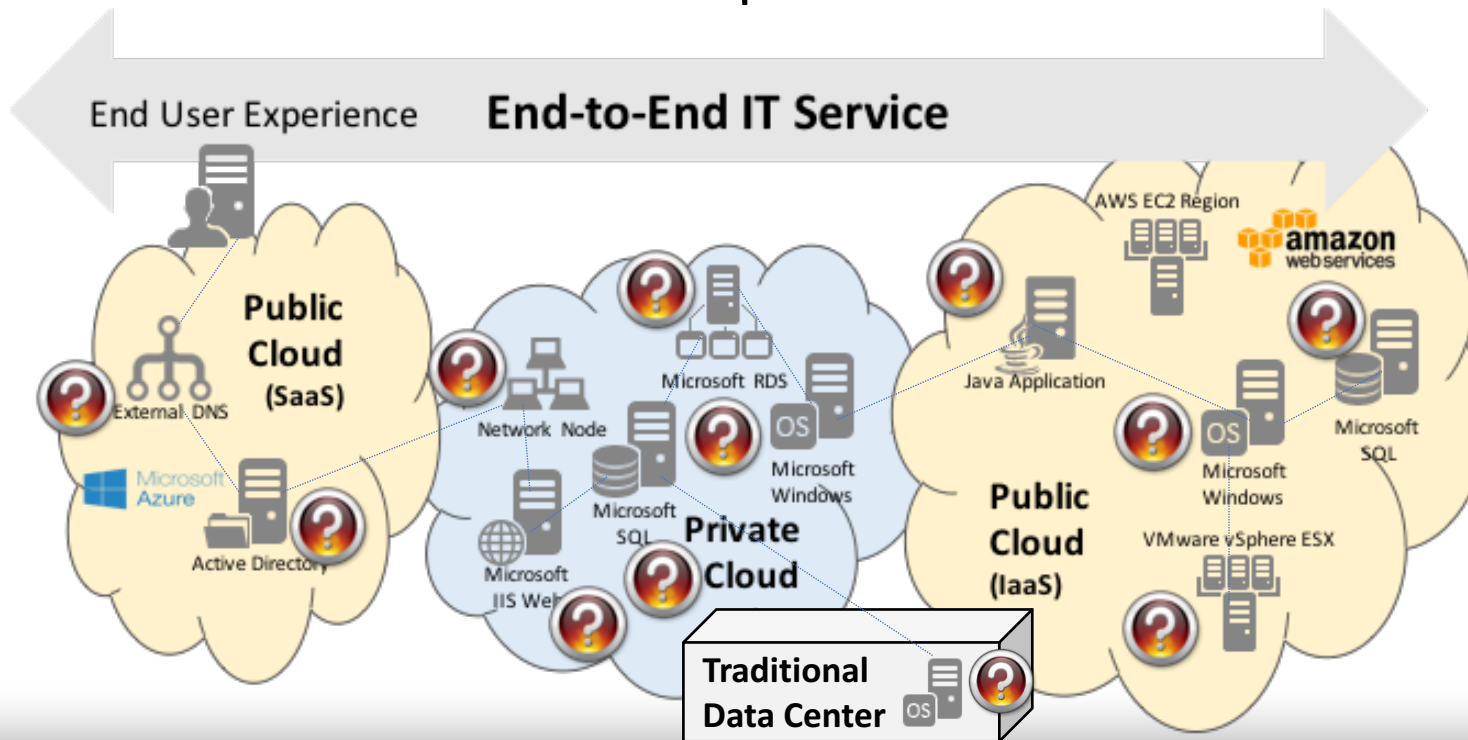
- What's the cause of a performance issue?
- What is happening right now?
- What is the trend?
- Did my test pass?
- Is there a security threat?
- What's the impact of this change?
- Who should be notified?
- What action should I take?
- …

What technology monitoring does...

But there are hundreds of monitoring tools...

- Stress testing tools
- Debugging & optimization tools
- Infrastructure & application monitors
- Project/Program monitoring
- Diagnostic tools (i.e., sniffers, etc.)
- Administration tools (i.e., device specific)
- Alarm/notification management

What technology monitoring does...

...used by many different people and processes and for different purposes along the lifecycle...
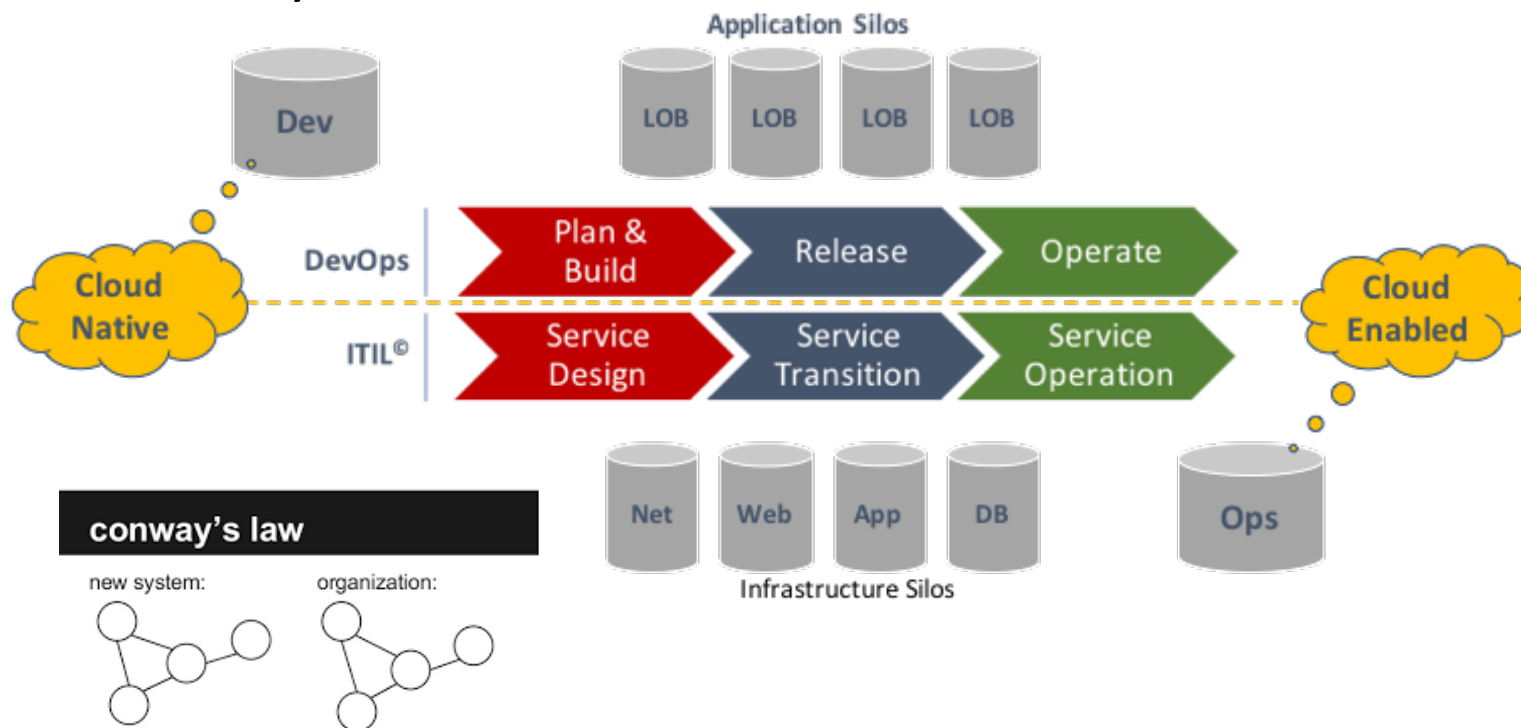
- Product Owners
- Service Owners
- Designers
- Developers
- Testers
- Architects
- Engineers
- Deployment Staff
- SMEs
- Service Desk

What technology monitoring does...

...which can result in a highly fragmented monitoring environment, resulting in...
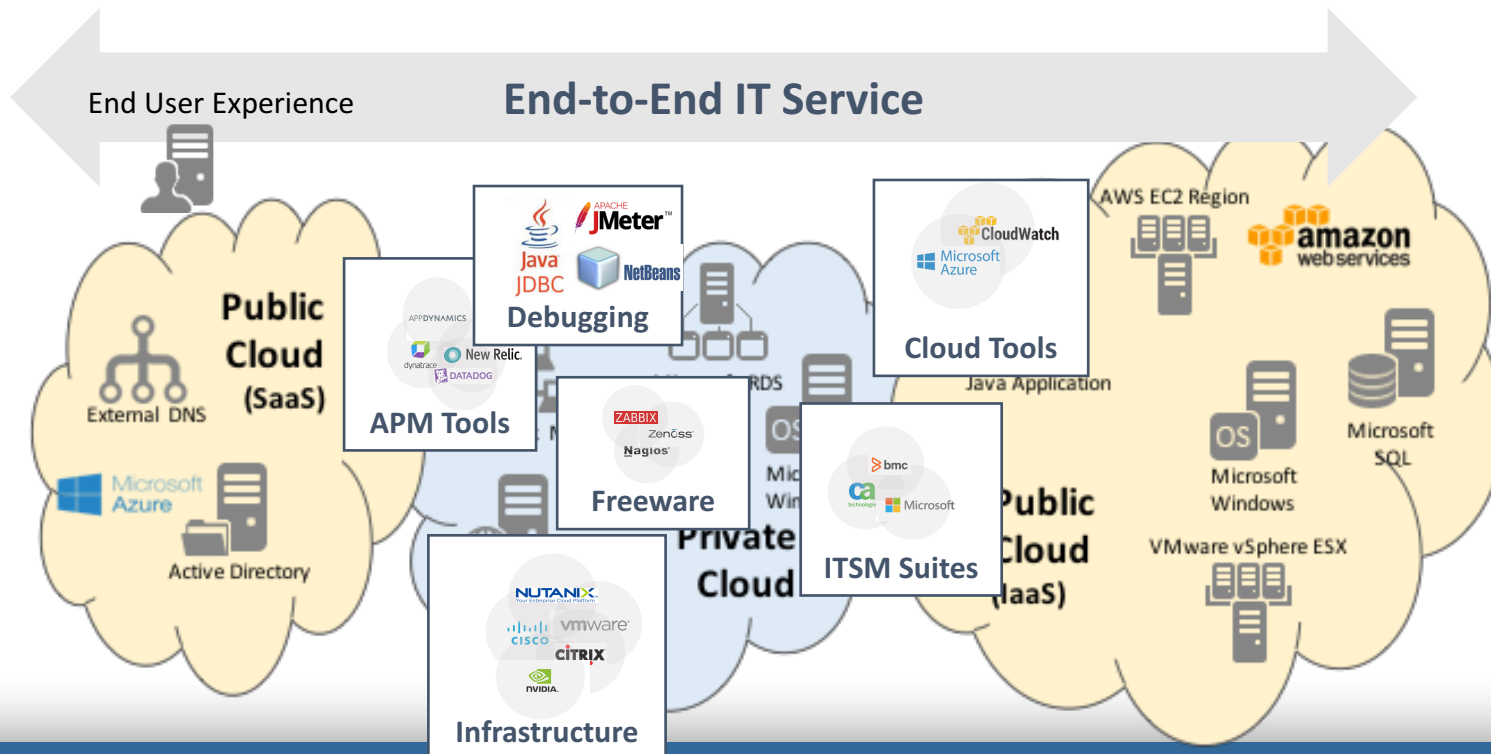
What technology monitoring does...

...which can result in a highly fragmented monitoring environment, resulting in...

...the **Not My Problem** syndrome!

https://devops.com/not-problem-big-problem-devops-teams/

What ITSM and ITIL® say about monitoring

- Monitoring is closely related to ITIL©'s Event Management

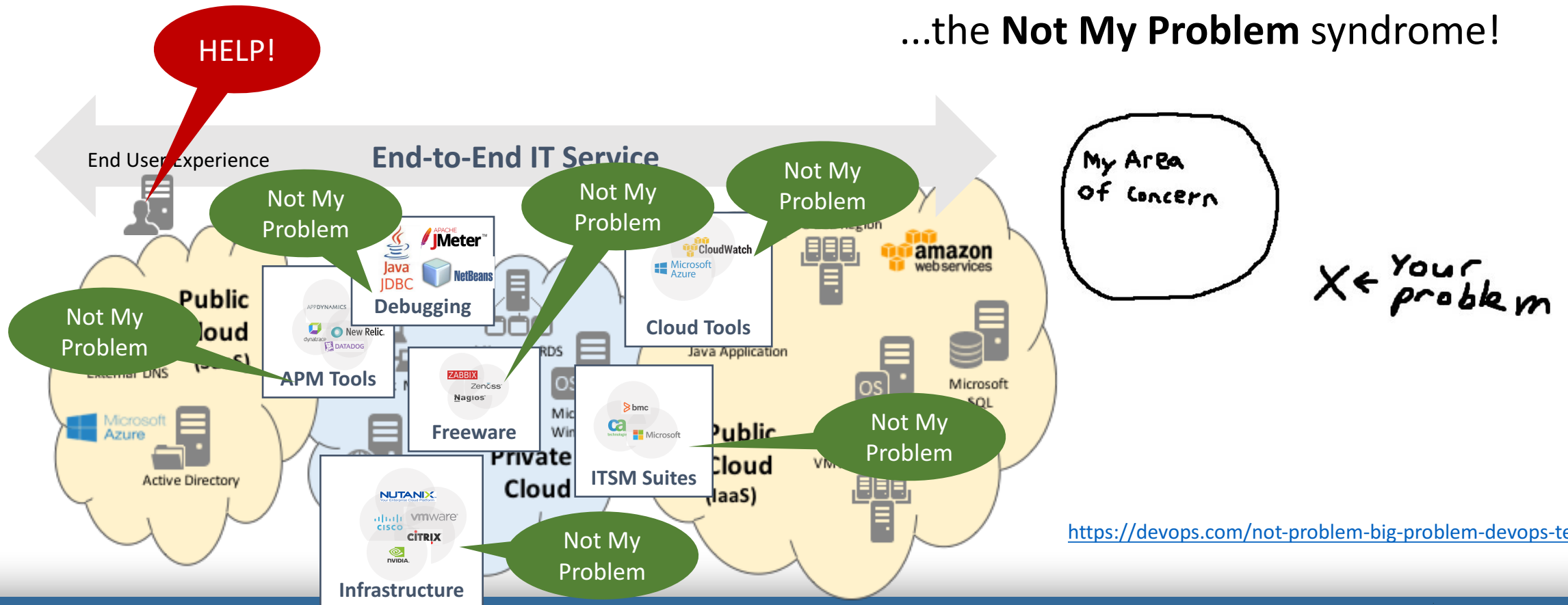 - **Detect events, <u>make sense of them</u> and determine control action**

- Event Management provides the trigger for many other ITIL© processes

ITIL©

Service Design	Service Transition	Service Operation	Monitoring and event management focused on operational monitoring and control
Service Level	Change	Event	
Capacity	Config	Incident	
Availability	Release	Problem	
Security	Knowledge		

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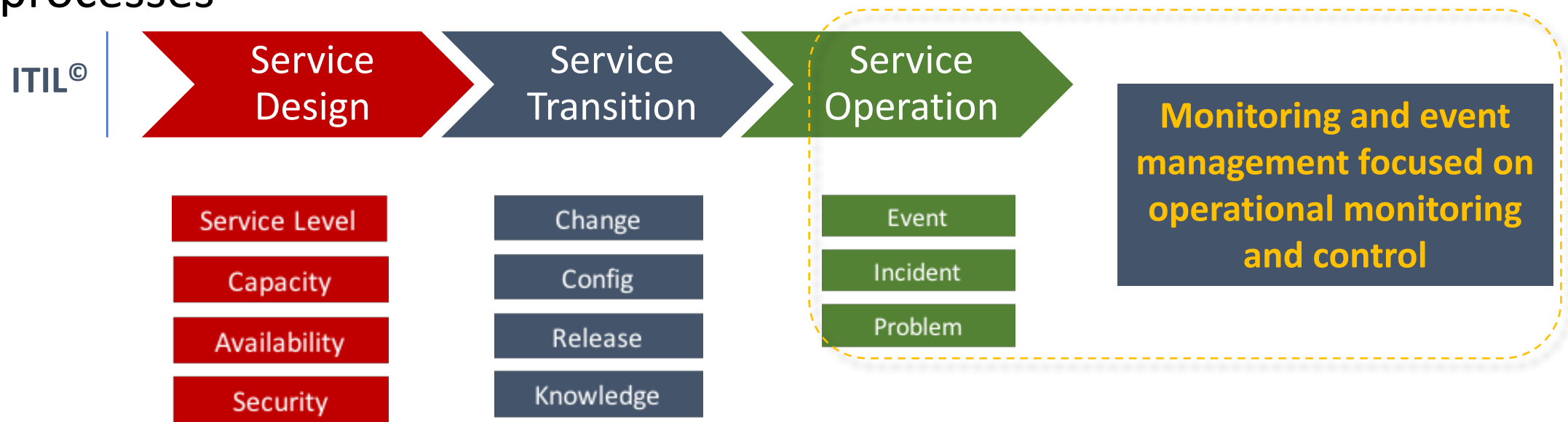
What ITSM and ITIL® say about monitoring

- The measurement and control of services is based on a continual cycle of monitoring, reporting and subsequent action

- Fundamental to the delivery, support and improvement of services

- Performed by service operation functions, but provides a basis for setting strategy, designing and testing services and achieving meaningful improvement
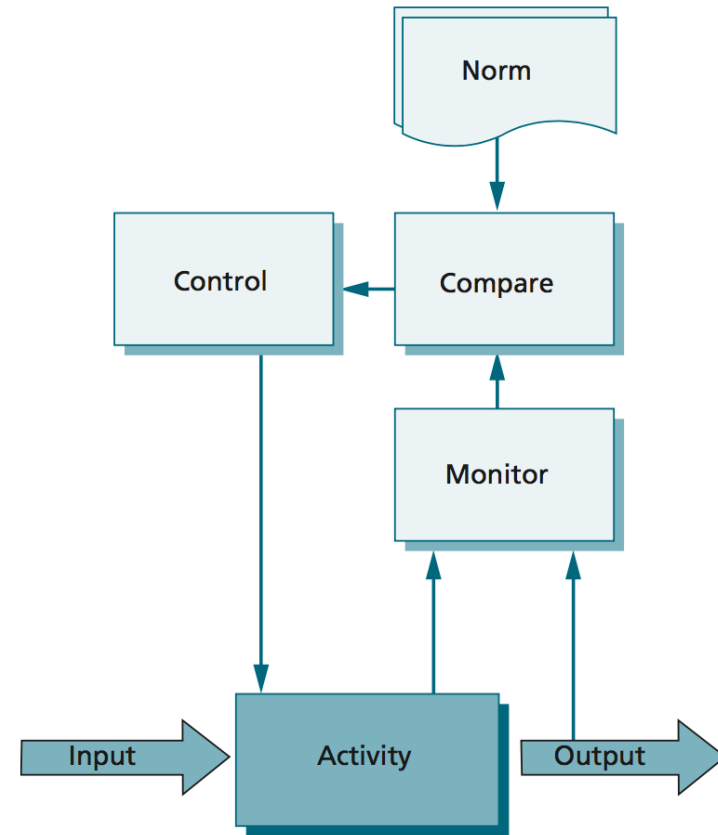
Monitor & Control Loop, ITIL CSI

What DevOps says about monitoring

- Monitoring 'shifting left' to catch errors early and often
- Monitoring and design for self-healing IT services

DevOps

| Plan & Build | Release | Operate |

Acceleration through the lifecycle...

...test & monitoring SHIFT-LEFT

KEEP CALMS AND DEVOPS

C – Culture
A – Automation
L – Lean
M – Measurement
S – Sharing
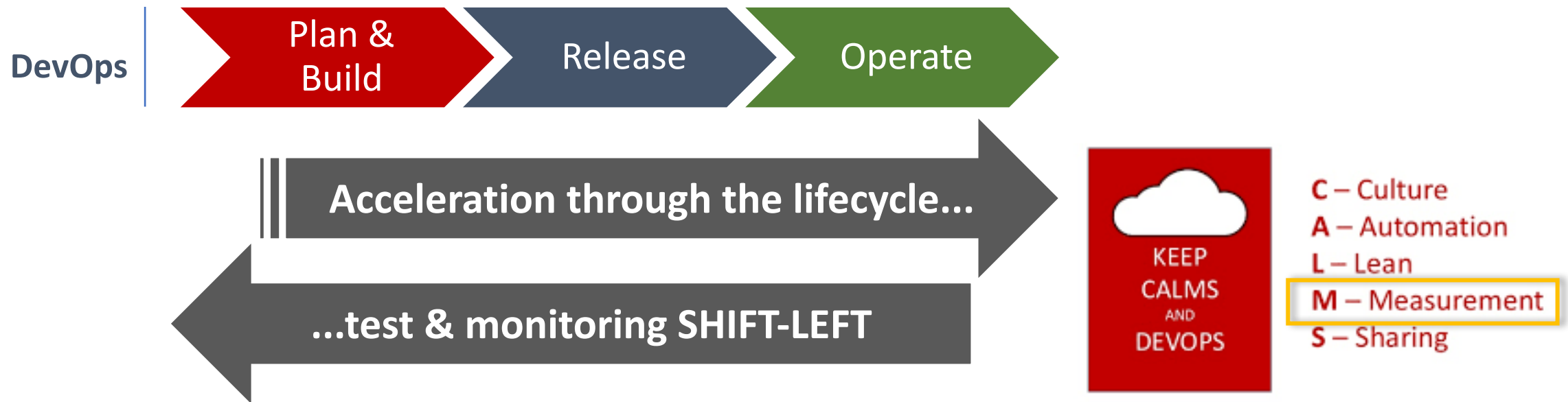
What else DevOps says about monitoring...

#monitoringsucks

#monitoring ❤

Satisfaction With Monitoring Strategy

■ 2016   ■ 2017

48%

30%

< 50-75% of alerts resolved in 24 hours

63%

51%

75%-100% of alerts resolved in 24 hours

Source: The New Stack Analysis of BigPanda's State of Monitoring 2017 (http://start.bigpanda.io/state-of-monitoring-report-2017). **THE NEW STACK**
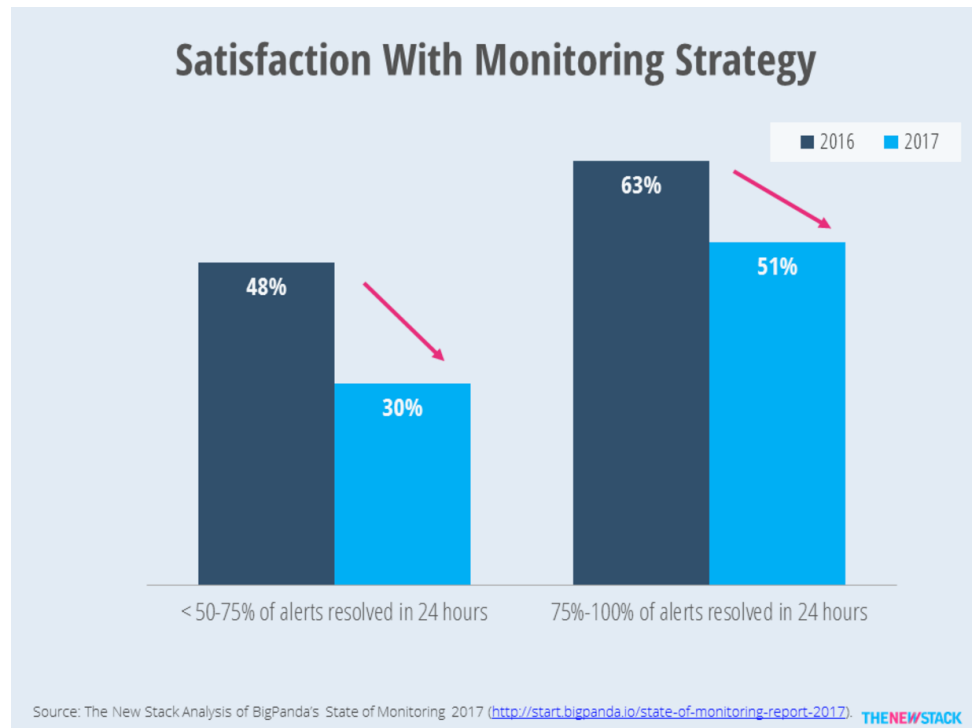
"...almost all of the tools focus has been on the **pre-production provisioning** process, but with increasingly mature DevOps programs the requisite post-deploy feedback loop will now receive greater attention. ..."

Cameron Haight Research VP, IT Operations, Gartner

http://www.devopsdigest.com/2017-devops-predictions-1

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Visibility, transparency and analytics

- **Analytics provide actionable knowledge**

- **Accelerates remediation, learning and transparency**

- **Data must be provided in a real time, service oriented context**

- **Improves visibility**
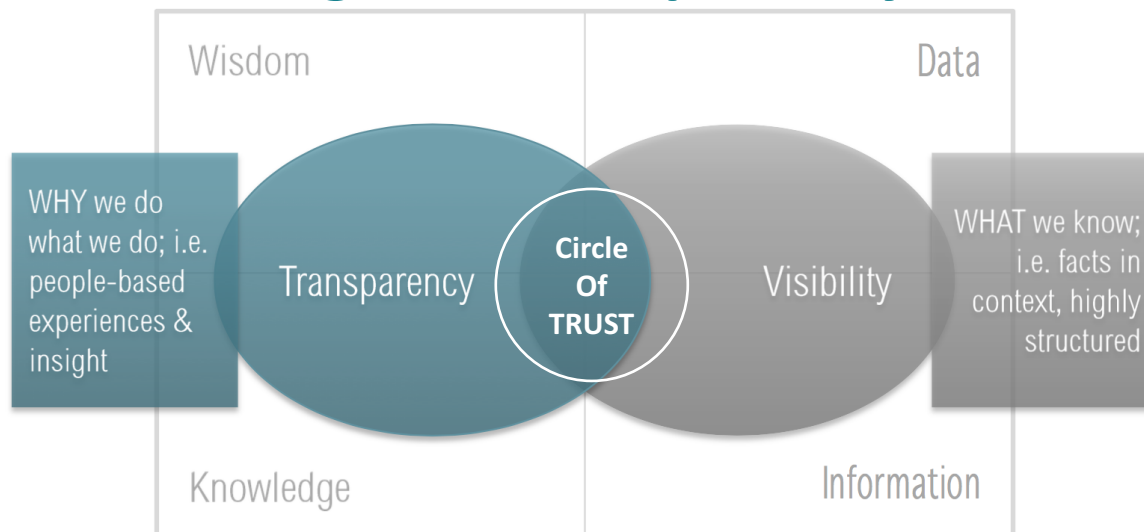
Making End-to-End IT Services Visible: *Integrating Monitoring and Event management with the Service Lifecycle* ©Third Sky, Inc.

Transparency's needed to be in the circle of trust!

Leveraging IT monitoring for organizational success

The importance of monitoring for ITSM and DevOps

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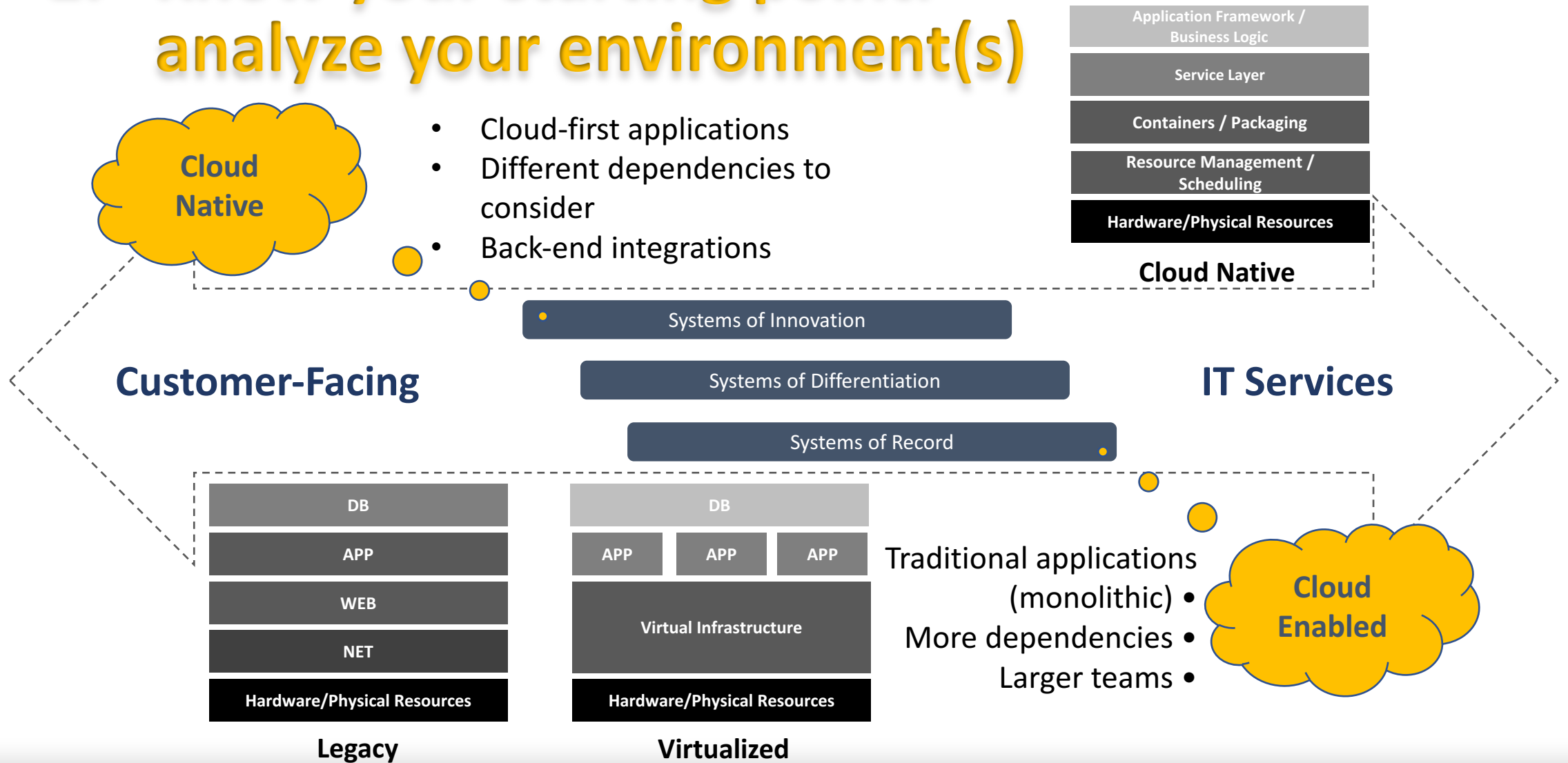
1. Know your starting point

Monitoring projects must anticipate people and process interfaces

- **People** – Roles, skillsets, organizational landscape
- **Process** – ITSM/DevOps capability/maturity
- **Tools** – Current inventory of monitoring tools

"If you don't know where you are, a map won't help."

~Watts Humphrey

1. Know your starting point: analyze your environment(s)

Cloud Native

- Cloud-first applications
- Different dependencies to consider
- Back-end integrations

Application Framework / Business Logic
Service Layer
Containers / Packaging
Resource Management / Scheduling
Hardware/Physical Resources

Cloud Native

Customer-Facing

- Systems of Innovation
- Systems of Differentiation
- Systems of Record

IT Services

DB
APP
WEB
NET
Hardware/Physical Resources

Legacy

DB		
APP	APP	APP
Virtual Infrastructure		
Hardware/Physical Resources		

Virtualized

- Traditional applications (monolithic)
- More dependencies
- Larger teams

Cloud Enabled

2. Agree on service measurement priorities

- Services provide the context needed to understand business impacts and dependencies

- Services can provide focus across process groups, stakeholders and service lifecycle stages

- Could include:
  - Customer-Facing IT Services
    - Business transaction health / End User Experience
  - Supporting IT Services
    - Application health
   - Infrastructure health

2. Agree on service measurement priorities

- What do you want to measure?
  - A specific device or component?
  - Application code?
  - End-to-end IT services?

- The scope will impact your monitoring shortlist!

- Don't confuse top-down design with bottom-up instrumentation

- Where are your greatest costs?
  - In most cases **_making sense of events_** a across *end-to-end IT services* is where the greatest potential for improvement lie

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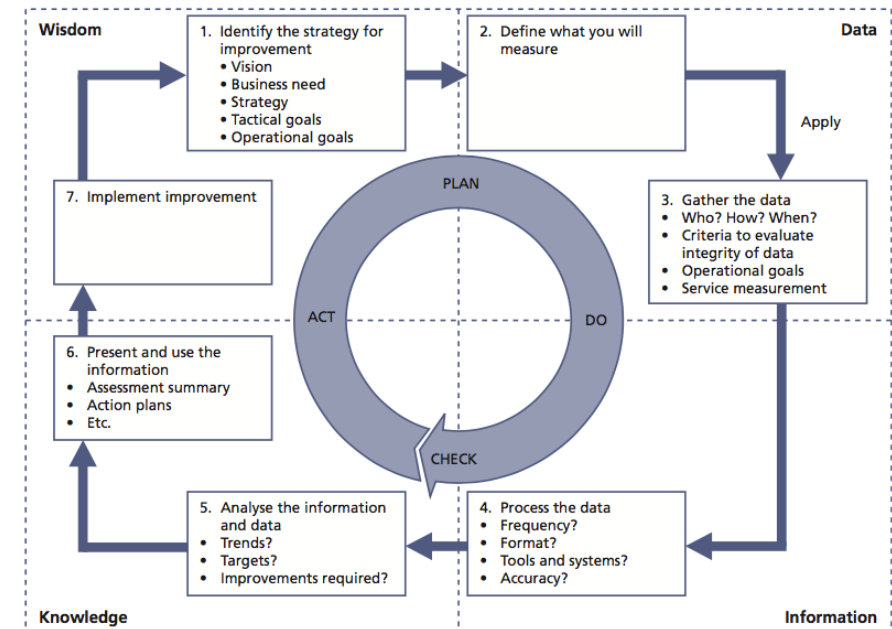
3. Establish initial baselines

- Baselines are a best practice for both traditional and cloud deployment options
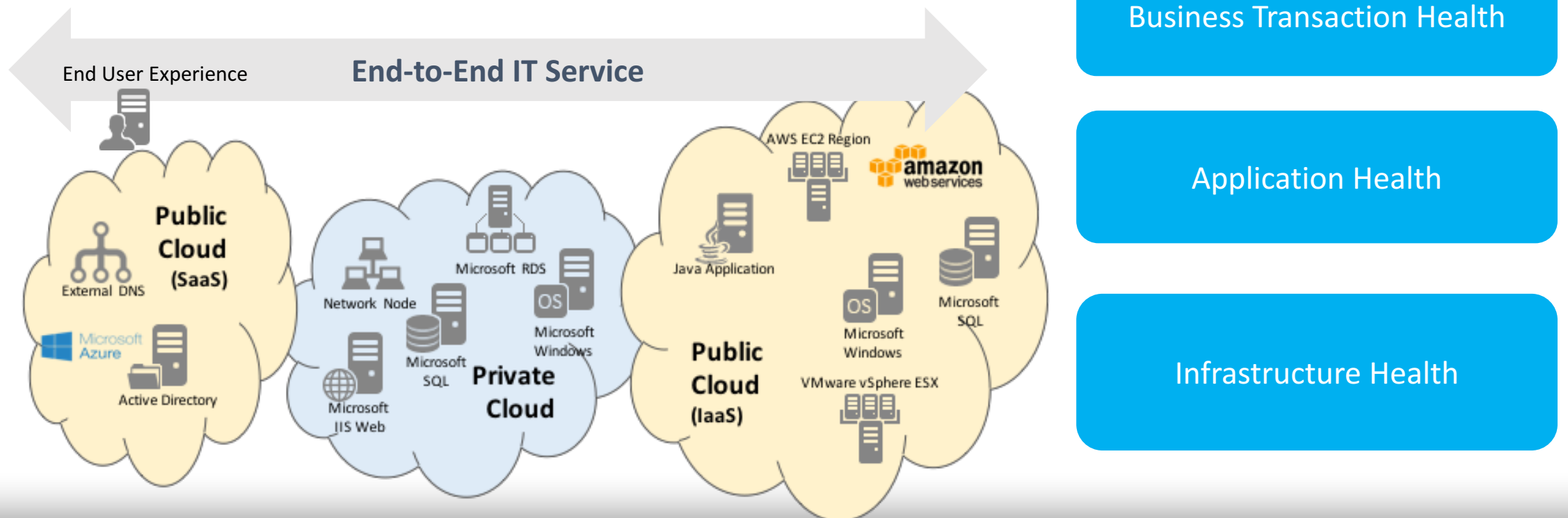
4. Validate tool analytics

- Analytics is the discovery, interpretation, and communication of meaningful patterns in data

- Helps answer:
  - What happened?
  - How or why did it happen?
  - What's happening now?
  - What is likely to happen next?

4. Validate tool analytics: services orientation and context

- A service deliberately abstracts the operational aspects of a business capability, because customers don't care about your business processes --- value lies in the _outcomes_ customers' desire!

- Services provide the **context** needed to understand business impacts and dependencies

Connecting the dots between service abstractions and the underlying components is where the devil meets the details...

The Devil is in the Details

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4. Validate tool analytics

- Event correlation
  - Makes sense of events
  - Often confused with filtering
  - Effectively differentiates between cause and effects

- Analytics
  - Metric aggregation
  - Trending, capacity planning
  - Post-factor diagnosis

- Artificial intelligence
  - Machine learning (i.e., self-learning thresholds and predictive analytics)

Conclusion

The importance of monitoring for ITSM and DevOps

Importance of monitoring for ITSM and DevOps

- ITSM, DevOps and IT transformation are about organizational development, and PEOPLE are at its heart

- TRUST is critical to transformational change

- You can't be in the 'circle of trust' without TRANSPARENCY

- Data provided in a service oriented context leads to information and visibility

- Analytics provides actionable knowledge and leads to transparency

- Effective monitoring accelerates the DIKW cycle

- DevOps' amplifying and accelerating feedback is also dependent on effective monitoring

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Leveraging monitoring for success

1. Know your starting point

2. Agree on service measurement priorities

3. Establish initial baselines

4. Validate Tool Analytics
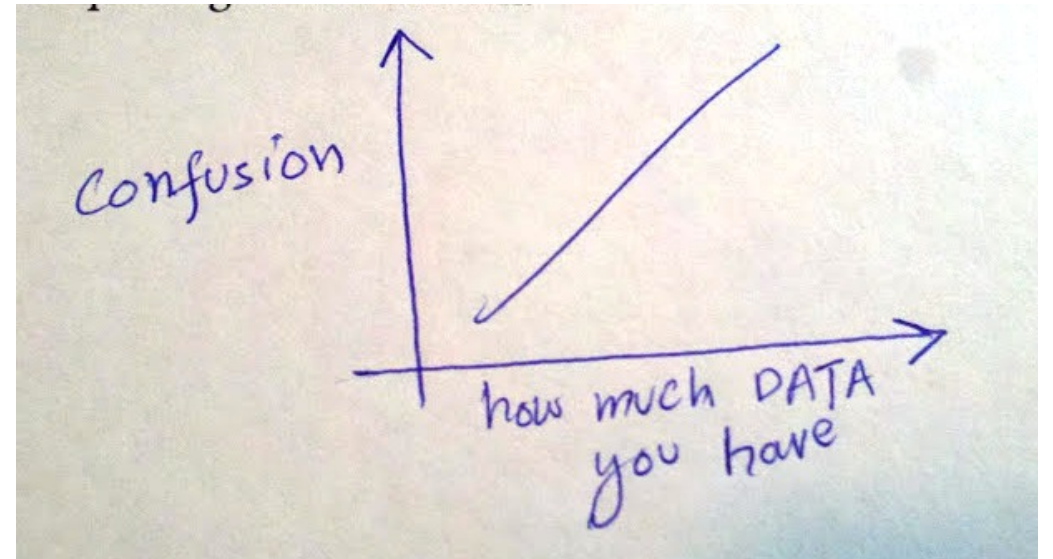
Additional resources

eG Innovations was one of the earliest vendors to explore the performance challenges that virtualization and cloud computing introduce. eG Innovations products include the only truly virtualization-aware root-cause diagnosis technology in the industry today. Our patented automatic root-cause diagnosis technology is designed for dynamic, inter-dependent physical, virtual and cloud infrastructures where proactive monitoring and rapid diagnosis of problems is a challenge. https://www.eginnovations.com/

We are Strategic Advisors to the C-Suite – and have been for over 35 years. We provide an integrated System of Transformation that delivers breakthrough in business results, culture, leadership, and teams, while developing world-class change leadership capability. http://www.beingfirst.com/

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Questions

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