Service Performance and Availability Monitoring: The Way Forward

Will Cappelli

Gartner

Proactive Availability and Performance Monitoring Is More Than Red, Green, Yellow

40% of unplanned downtime is due to operator error.

- Traditional red-green-yellow monitoring was developed for the client/server environment.
- New business pressures, applications and cloud environments require more.
- Future innovation in tools will improve predictive capabilities, allowing proactive outage avoidance.

Gartner

Key Issues

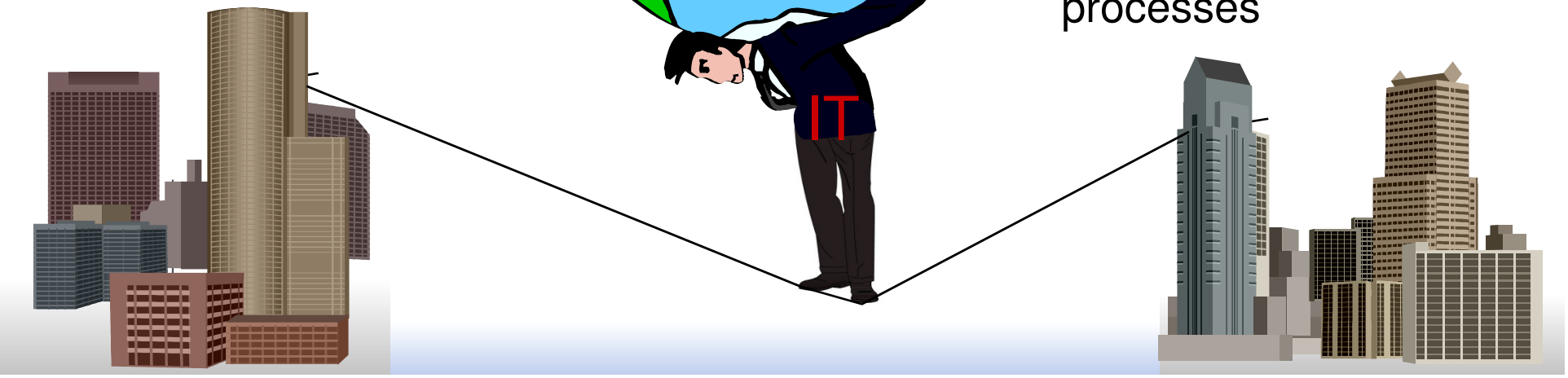
1. What business drivers demand improved IT service availability and performance management?
2. Which vendors and technologies will enable IT operations to accomplish predictive outage avoidance?
3. What IT management processes, best practices and strategies will IT operations groups use to monitor, report, predict and improve IT service availability and performance?

Gartner

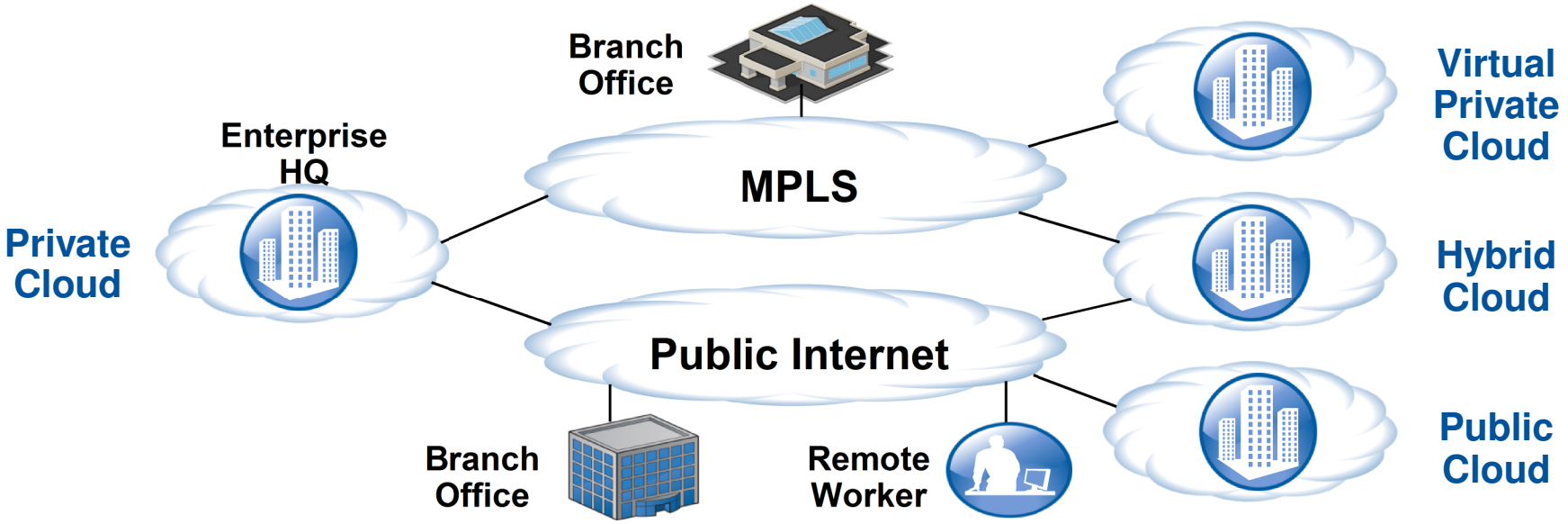
Requirement for IT Alignment With Business Remains a Top CIO Issue

- Greater demand for effective ways to demonstrate IT alignment with the business and manage IT support priorities in a business context

- Greater pressure for accessible, real-time, business-oriented display of how well IT services are performing in support of critical business processes



Cloud Computing and Real-Time Infrastructure: New Demands and Pressures



Characteristics:

- Highly distributed
- Dynamically changing
- Chaotic traffic flows
- Everything Web-based

Challenges:

- Inconsistent performance
- Insufficient visibility
- Uncertain latency

Gartner

Managing Chaos: The New Norm?

The Emerging Reality

- Virtualization and cloud
- Highly distributed and shared IT infrastructure
- Dynamic IT infrastructure means change is a constant
- New and complex traffic types
- More fluid borders between applications and infrastructure
- IT operations efficiencies must be measured
- IT operations is accountable for service quality, policy and compliance adherence

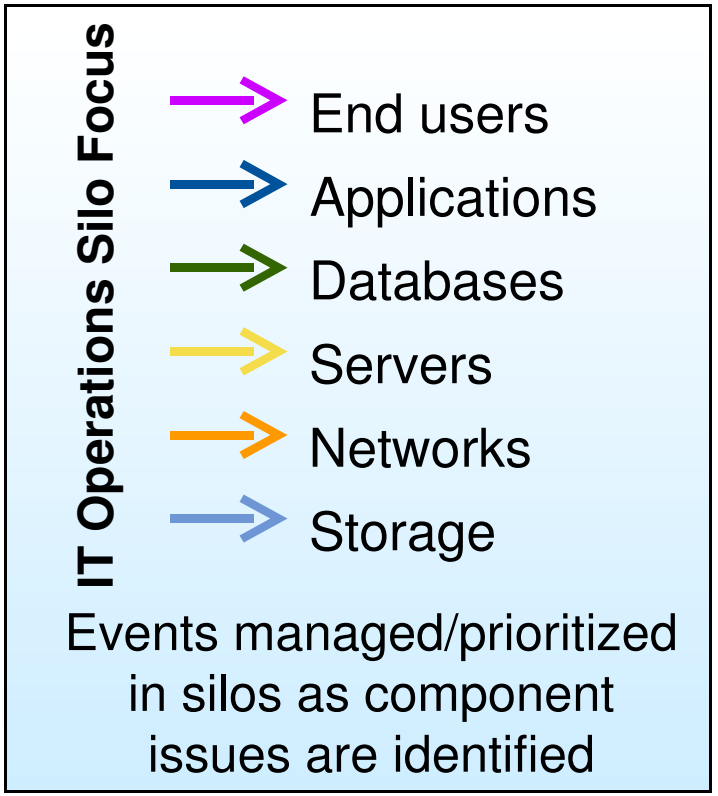
The Need

- IT infrastructure change detected instantly
- Changes evaluated relative to application, IT service and business impact
- IT operations performance measured against application and IT service availability
- IT infrastructure monitored dynamically, automatically adjusting to change
- Issues proactively detected, analyzed and avoided

Gartner

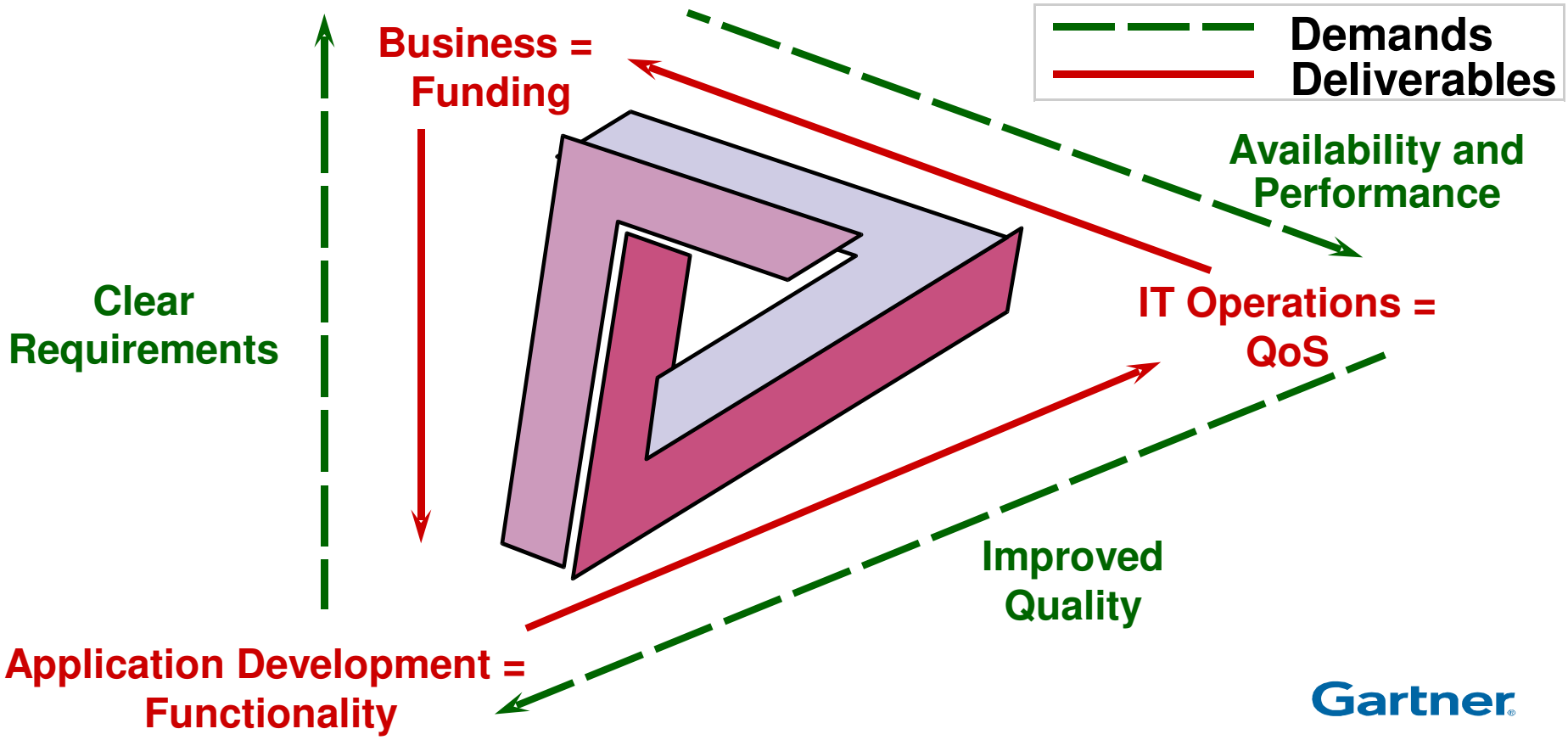
Managing IT Availability: Today's Reality

- Reactive (focused on MTTR)
- IT operations working within silos with limited organizational cooperation
- Component focused on 99.9% uptime
- Limited end-to-end monitoring capabilities, many silo tools
- Too many events (creating event storms) with too much data
- Growing need for skills to manage increasing complexity
- Hard-coded monitoring thresholds

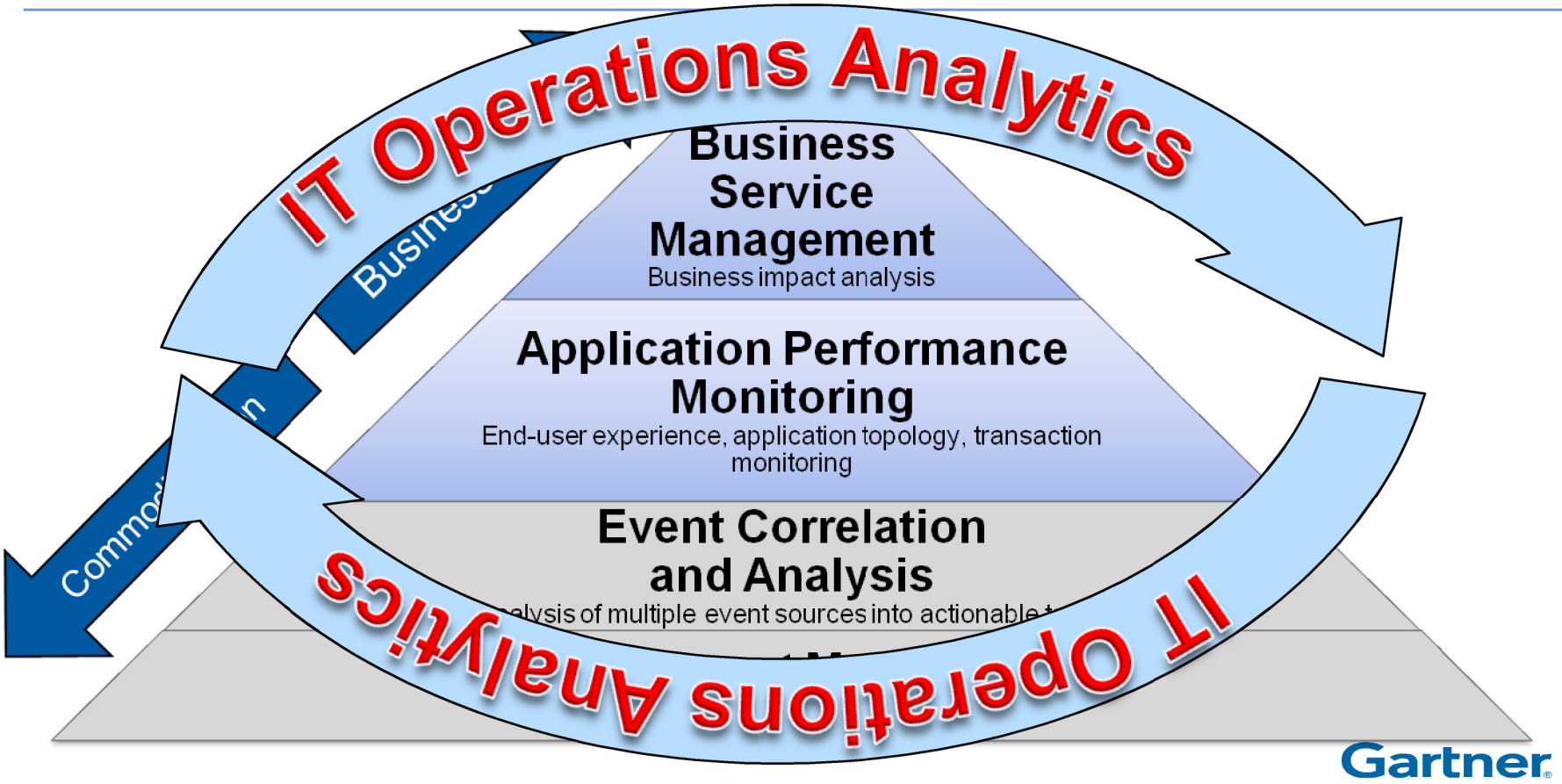


Gartner

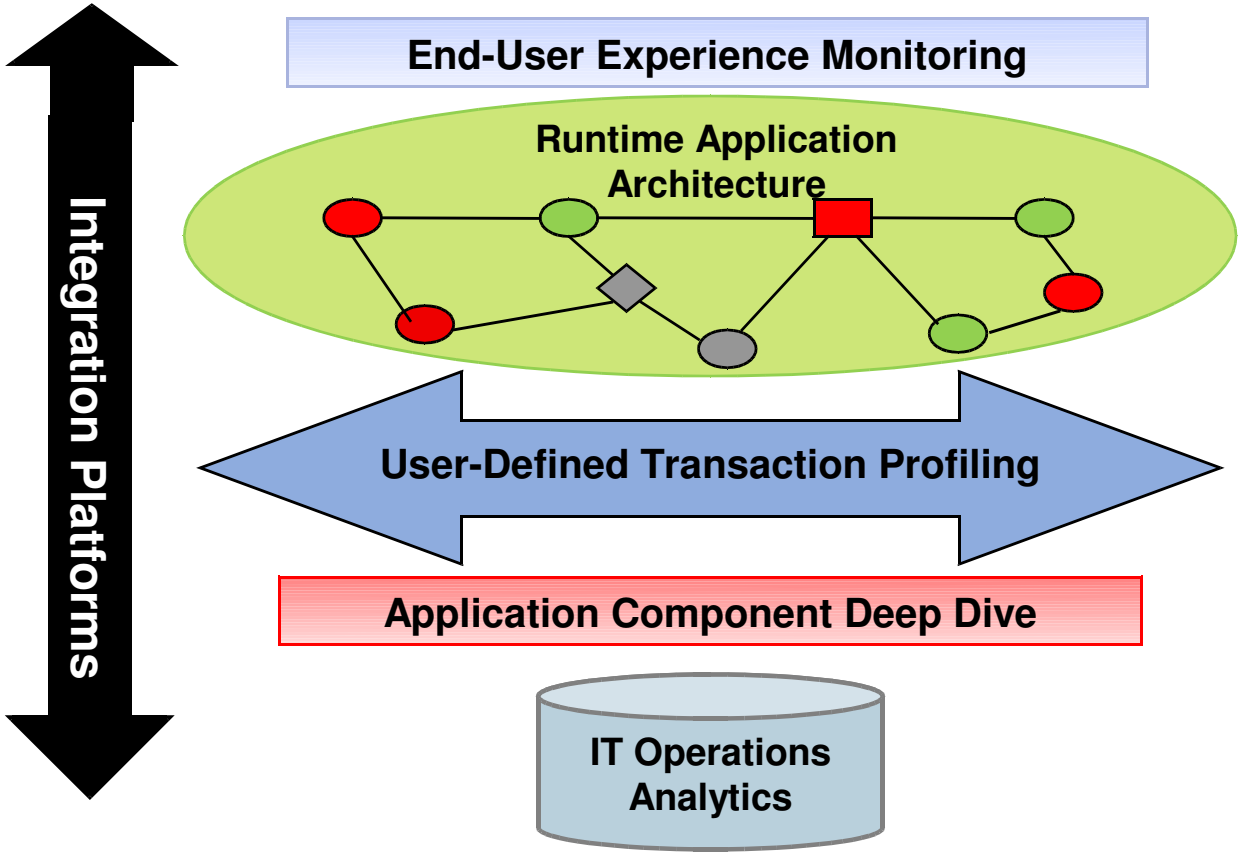
Balancing Application Development and IT Operations With the Business



The Availability and Performance Monitoring Hierarchy



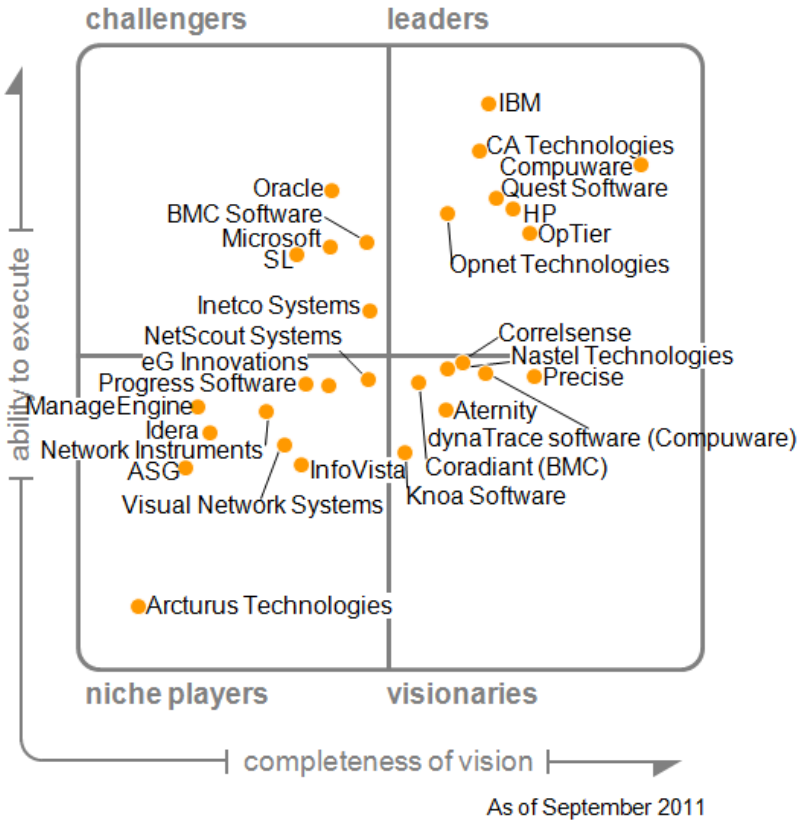
The Complete View: The Five Dimensions of Application Performance Monitoring



1. *Captures the user experience of an application or service.*
2. *Discovers and models application-determined logical topology.*
3. *Monitors the flow of what the user sees as a coherent transaction across IT and business components.*
4. *Captures rich statistics regarding components and component domains.*
5. *Consolidated, normalized, automatically triaged, correlated and analyzed data.*

Gartner

APM Magic Quadrant, 2011

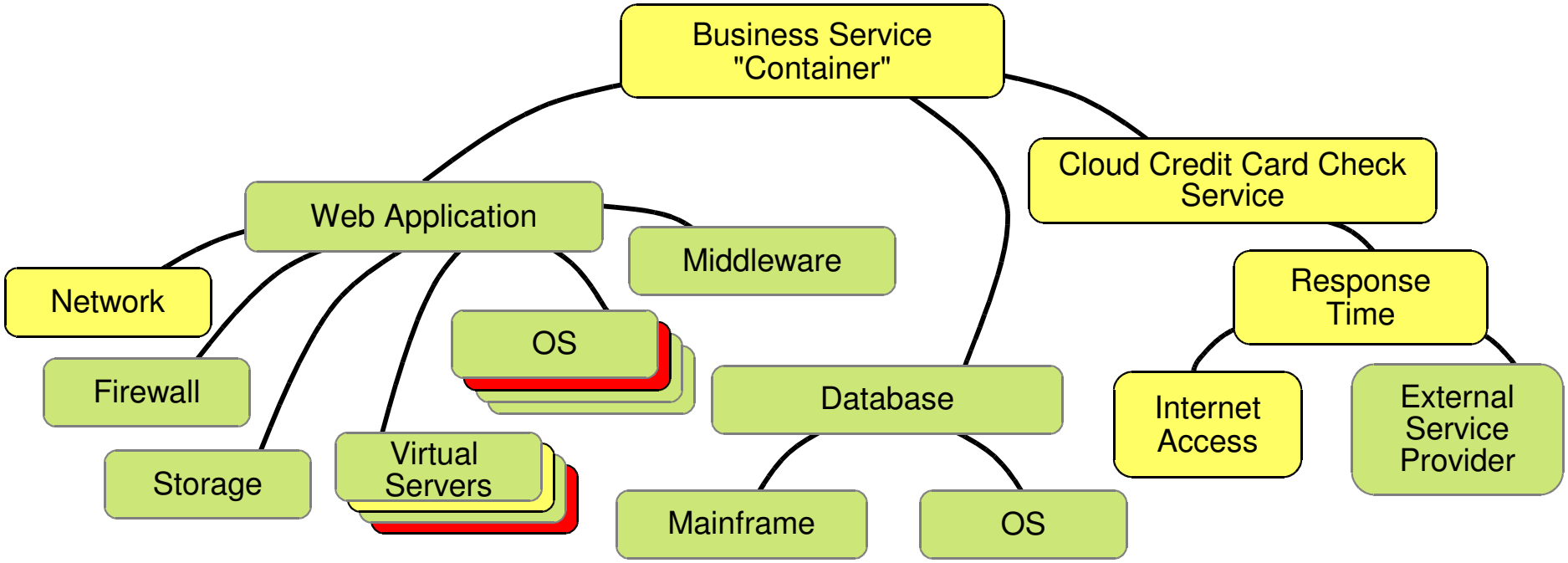


As of September 2011

(From "Magic Quadrant for Application Performance Monitoring," 19 September 2011)

Gartner

BSM: Adding a Top-Down Business Service View and Business Impact Analysis



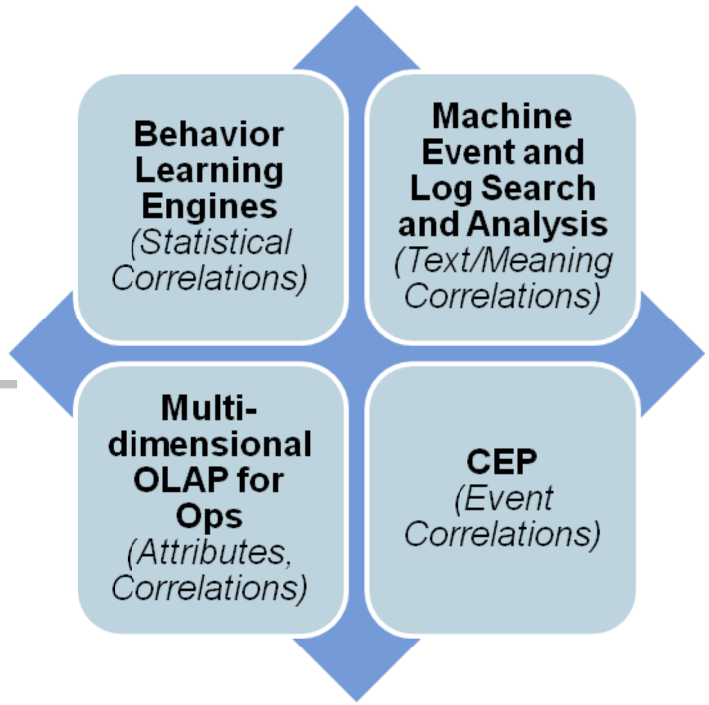
Example Vendors:

ASG, BMC Software, CA Technologies, Compuware, eMite, FireScope, HP, IBM Tivoli, Interlink Software, Neebula, NetIQ, Quest Software, Tango/04, USU, Zyrion

IT Operations Analytics: Key Approaches

Example Vendors:

- BMC
- HP
- Netuitive
- IBM
- VMware



Example Vendors:

- AccelOps
- HP
- Loggly
- LogLogic, LogRhythm
- Splunk
- SolarWinds

- Bay Dynamics
- Correlsense
- IBM
- Oracle
- Savision

- Microsoft
- SL
- StreamBase
- Sybase
- Tibco
- Progress Software

Automated and Assisted Analysis

Gartner

Predicting the Behavior of IT Systems Is as Complex as Forecasting the Weather

By 2016, companies that implement all four IT operations analytics approaches (BLE, event/log search, multi-dimensional OLAP, CEP) in an integrated manner will reduce IT outage minutes by at least 10%.

Drivers in favor of this SPA:

- Additional data sources, such as custom application logs, will improve the accuracy of the analytics and resulting predictions, permitting outage avoidance.
- Integration with real-time service models will better represent causal relationships, which will result in more efficient root cause analysis, shortened MTTR and improved severity identification.
- As complexity of dynamically changing IT environment increases, humans won't be able to keep up, and computer-assisted analytics will be a necessity.

Inhibitors that could prevent this SPA:

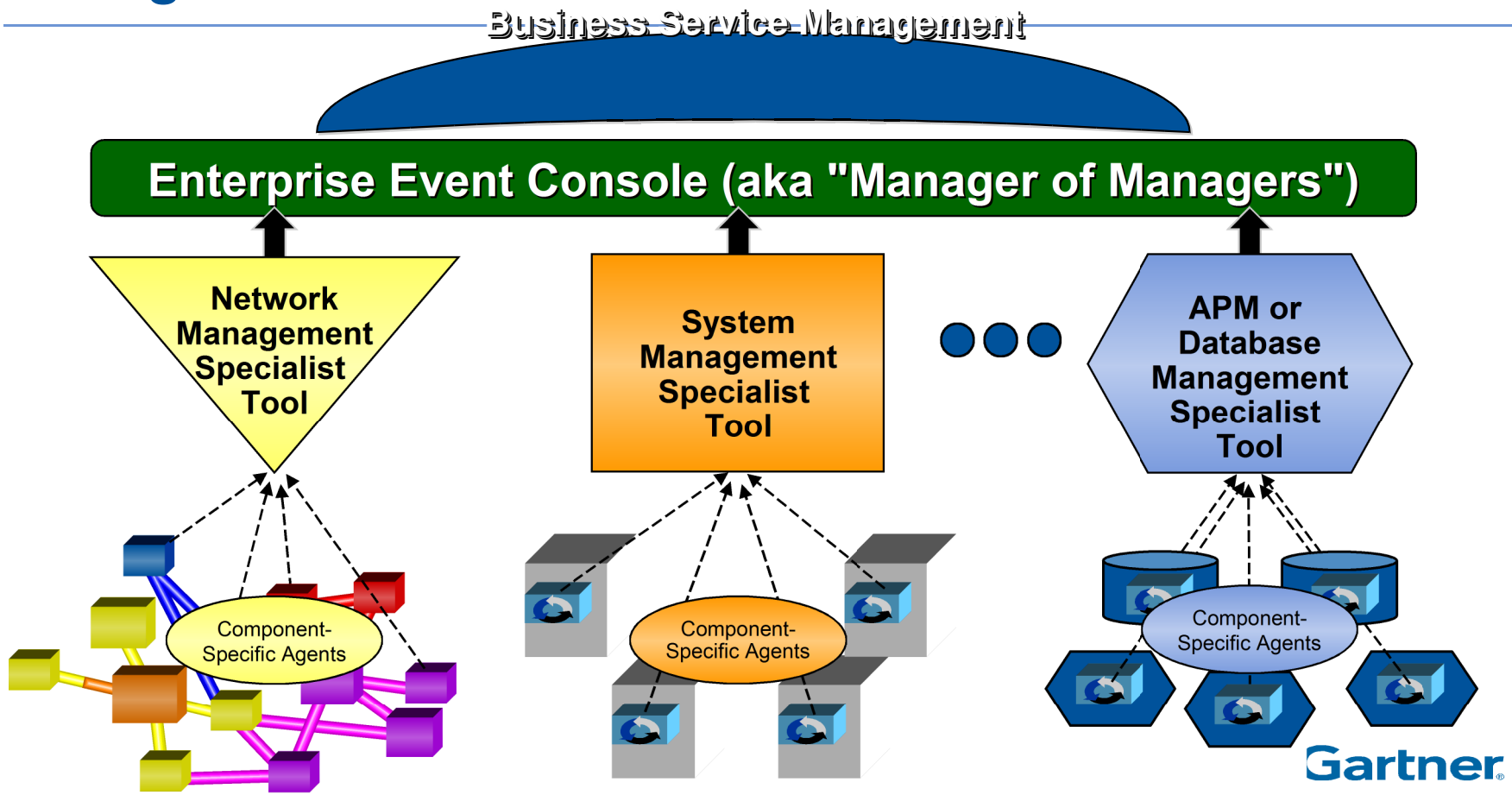
- Complex IT systems are as unpredictable as a tornado! They change rapidly and fail uniquely, and patterns won't ever be able to be discovered or accurately predicted.
- BLE will not progress beyond the current state of baselining "normal" behavior, detecting anomalies and suppressing nuisance events.
- Monitoring data will stay in separate silos and not feed IT operations analytics, leaving gaps and blind spots, resulting in misleading root cause analysis.

Gartner

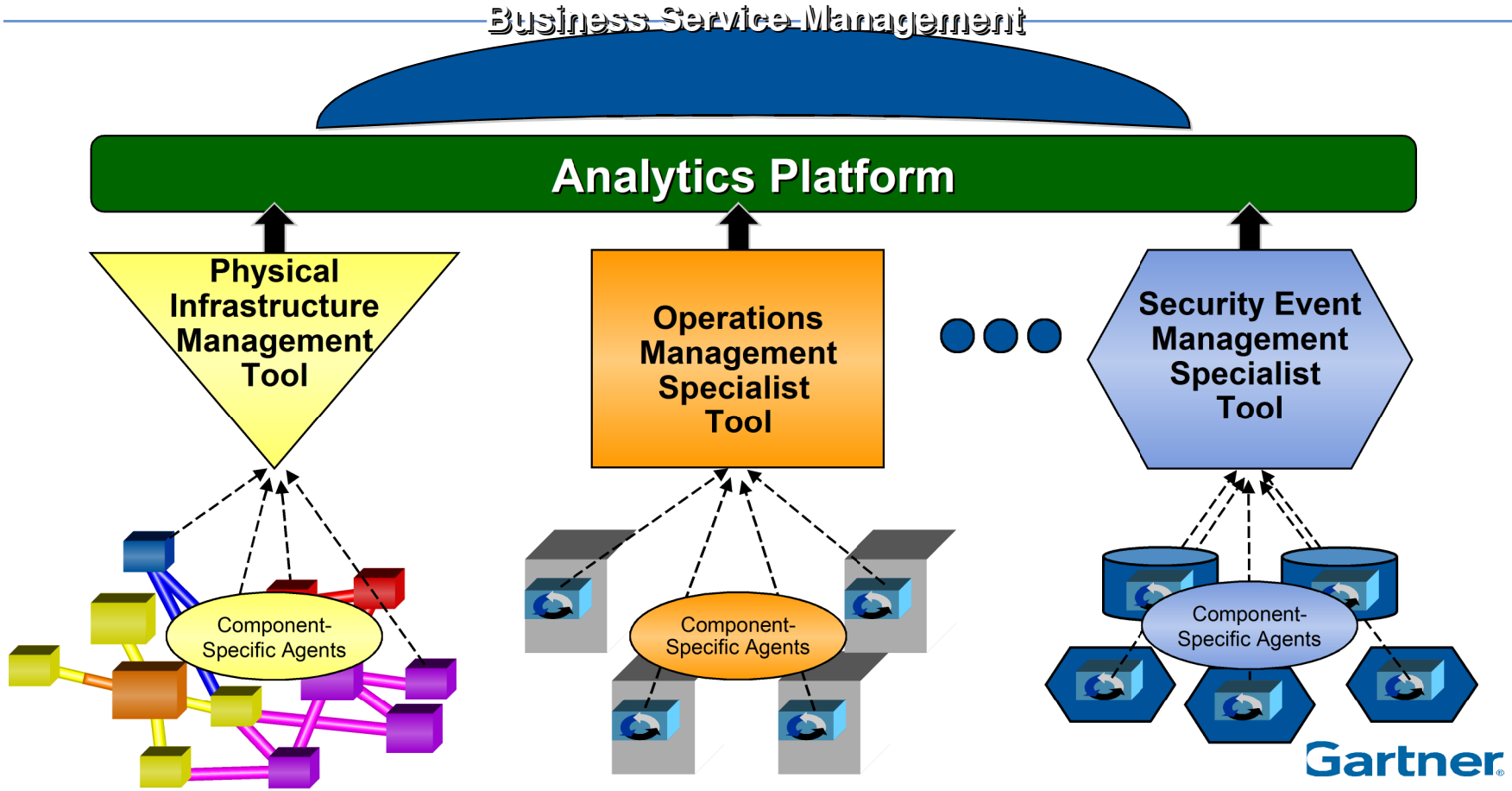
Aligning Availability and Performance Monitoring Tools to ITScore Maturity Model

Level	ITScore Maturity Model	Increasing Availability and Performance Monitoring Demands and Business Value at Higher ITScore Maturity Levels
5	Business Partner	Behavior learning engines, embedded knowledge, advanced correlation, trend analysis, pattern matching, and integrated IT and business data from sources such as BAM provide IT operations with the ability to dynamically manage the IT infrastructure in line with business policy.
4	Service-Aligned	Additional dimensions of APM are implemented to trace application transactions and analyze data. BSM tools are introduced to enable IT operations and business users to view how IT component events directly impact customer-facing, business-oriented IT services and drilldown to root cause of problems.
3	Proactive	Event correlation and analysis tools are implemented with event thresholds, suppressing extraneous data and correlating events to add context, with the goal of preventing incidents. Early investments in APM begin to appear, usually in the form of end-user experience monitoring.
2	Committed	Up/down status events are detected, consolidated, filtered, logged and viewed at an integrated console. Events are loosely integrated with help desk tools to aid in the event remediation process.
1	Aware	Limited, ad hoc IT component monitoring based on off-the-shelf tools, shareware or homegrown script-based PING tests that individual IT administrators create.
N/A	Level Not in ITScore	No monitoring; IT relies on users to call the help desk to report problems as a substitute for an IT event handling system.

Best Practice: Recommended Multitier Event Management Architecture



Best Practice: Recommended Multitier Event Management Architecture – The Bigger View



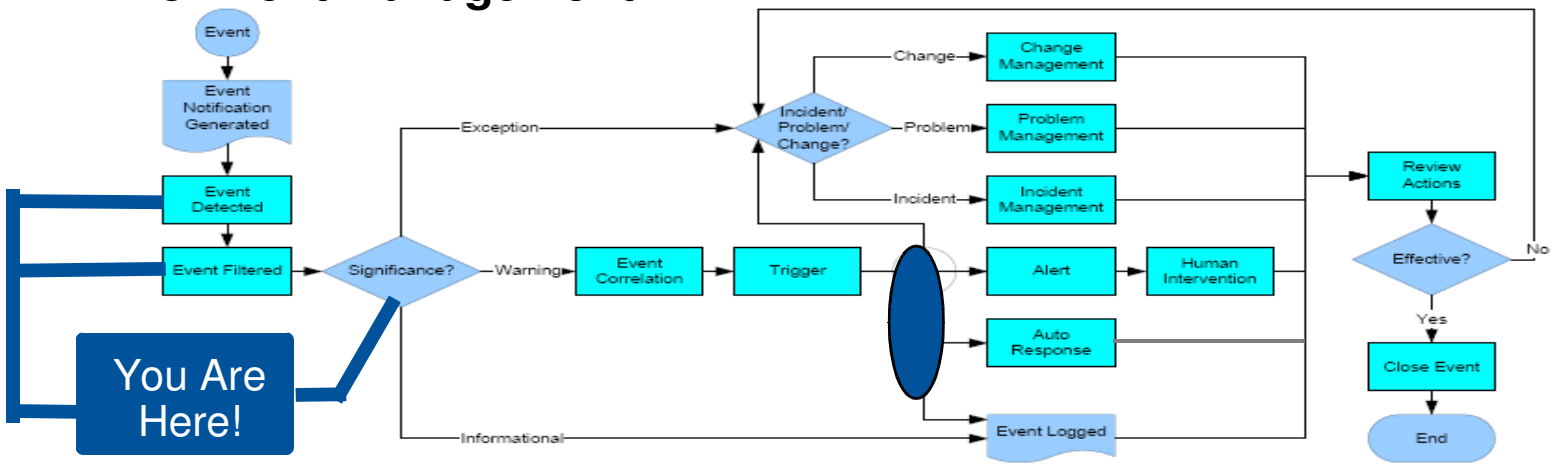
When Is Good Enough, Good Enough?

- Resource constraints allow for re-evaluation of technologies and implementations.
- Increasing infrastructure complexity requires lightweight, simple-to-manage software.
- IT operations is a service provider and should run software that is easy to manage and implement and has flexible views of the collected data.
- The cost of people is a large contributor to the total solution cost.

Gartner

ITIL v.3 Introduces the Event Management Process

ITIL v.3 Event Management



Source: IT Service Management Based on ITIL V3 – A Pocket Guide

- Events are detected, filtered and correlated by availability and performance monitoring tools.
- Linking event and incident processes shortens MTTR.
- Severity of events must be defined to avoid overwhelming other processes.
- IT operations analytics technologies can help reduce the flood of irrelevant events.

Gartner

Availability and Performance Monitoring Best Practice: Focus, Focus, Focus!

- Don't try to monitor everything.
- Focus on key metrics that are indicators of total end-to-end IT service quality.
- Use end-user experience and business impact as guides to prioritize your efforts.

Gartner

Best Practice: Remember to Communicate Your Successes!

- IT services
- Service levels
- Metrics
- Policies
- Dashboards

Gartner

Recommendations and Action Plan

Today

- Understand your maturity level, and plan your next steps accordingly.
- Don't try to monitor everything. Focus on key metrics that are indicators of total end-to-end IT service quality.
- Reduce complexity, effort and costs. Consolidate results from multiple availability and performance monitoring tools into a single event console.
- Build a road map for your availability and performance monitoring toolset to ensure strategic direction meets business demand.

Near Future

- Supplement traditional component monitoring and ECA fault management tools with proactive performance management and behavior learning engines.
- Invest in APM to gain an automated understanding of end-to-end IT service quality, improve the alignment of IT monitoring with business value, and foster collaboration with the application development team.

Long Term

- Advanced IT operations analytics technologies will trickle into existing products to provide proactive issue resolution.
- Availability and performance monitoring tools are not islands — understand how the tools will support and integrate with your bigger IT initiatives (for example, CMDB, IT service management).

Gartner

PCTY2012

Pulse Comes to You