Performance Management System Approach

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NH2
MANAGING NEW PERSPECTIVES

Experiences
An Insurance Customer

- **Problem Description**
  - A web application for agent submitting insurance cases
  - User experiencing with intermittent issue like internal server error and in many situations that some users are able to access to the system and some are not
  - When there are significant of users are affected, they will restart their applications and sometime restart the server as a workaround
- **Project Sponsor**
  - IT Infrastructure Team
- **Assessment Objective**
  - To help isolate and identify application issues
- **Tools deployment**
  - Compuware Dynatrace
- **Finding and Recommendation**
  - Load balancer mis-configuration

Experiences
A Banking Customer

- **Problem Description**
  - New HR application roll out and understanding system resources benchmark
- **Project Sponsor**
  - PMO/Application Owner
- **Assessment Objective**
  - To help determine resources requirement like network bandwidth, system usage and understanding HR Service Topology
- **Tools deployment**
  - UCMDB/UD, Load Runner, HP Sitescope
- **Finding and Recommendation**
  - System resources saving
  - User per business transaction network usage to help capacity planning for remote offices

NH2.
MANAGING NEW PERSPECTIVES

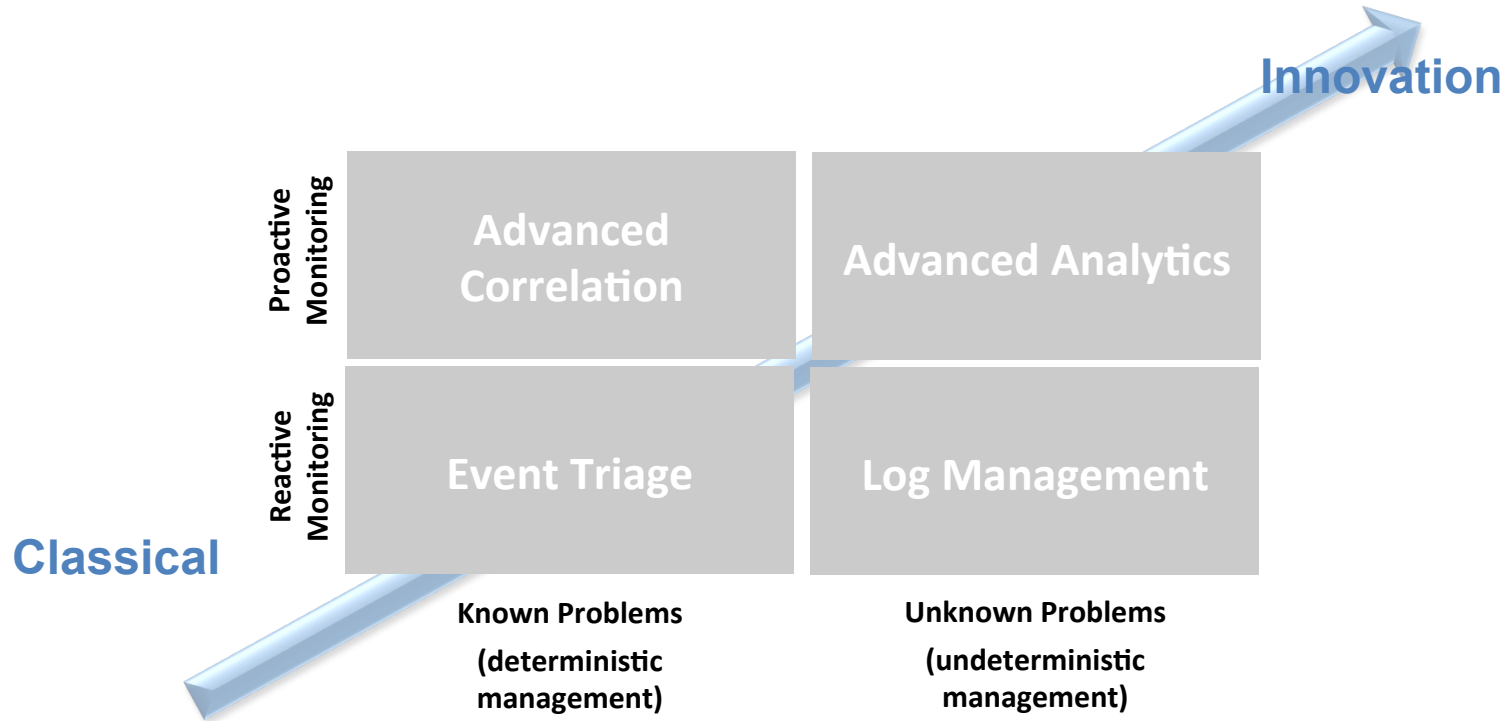# Building Performance Management
MEAL Framework

- Start from a Business Service
- Define your Service Boundary
- Identify all your critical technology components
- Work with technology SMEs to define metrics that have significant to your KPI and CSF
- Monitor what you know/define
  - Don't be greedy to monitor all metrics
  - Don't be naïve to take metric as it is

- New monitor?
- Log all Event Activities
- Integrate with other processes like Incident, Problem and Change
- Convert Unknown to Known Problem

Monitor What Matters

Event with Purpose

Learn From Experience

Act Till It closes
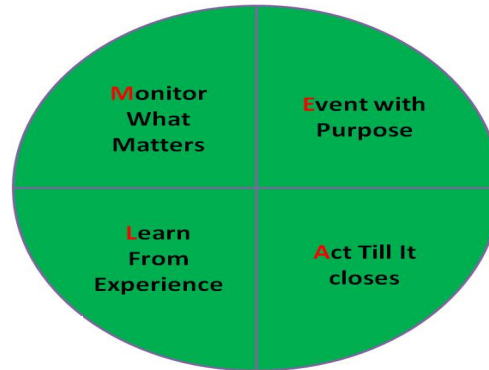
- Monitoring isn't an event
  - Not all monitors trigger event
- Event has to be meaningful for action
- Event should be enriched, if possible correlated and predictive
- Event should have a standard remediation procedure, if possible automate it

- Track event lifecycle states from Open to Close
- Define ownership of event
- Escalate event for diagnosis
  - Not all Events are Incident
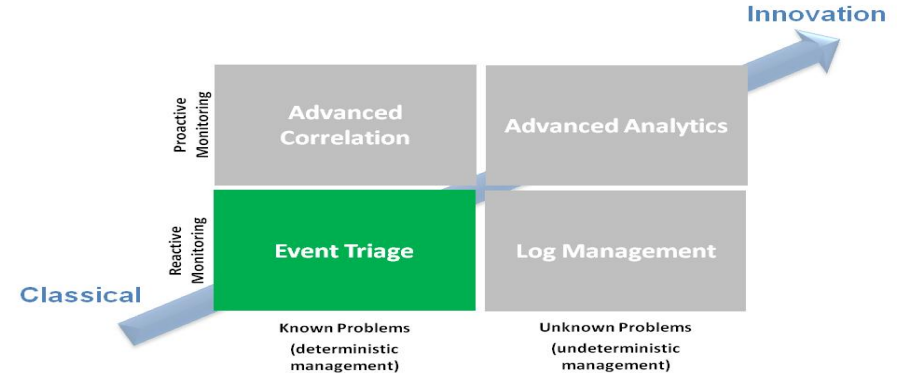- Equip event owner with tool to investigate and diagnose

Building Performance Management
Issue Quadrants

Building Performance Management
Issue Quadrant: Event Triage

- It is only as good as what you are monitoring
- Reactive when informed
- Deterministic in nature
- You have full control of your environment as per defined

Example:
- A Process is unavailable
- A Node is down
- Database Service failed

Innovation

	Advanced Correlation	Advanced Analytics
Proactive Monitoring		
Reactive Monitoring	Event Triage	Log Management

Classical

Known Problems (deterministic management)　　Unknown Problems (undeterministic management)
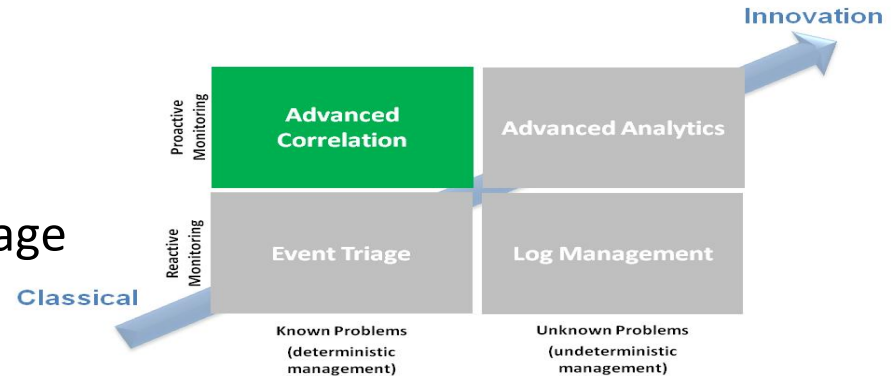
Building Performance Management
Issue Quadrant: Advanced Correlation

- A broad metric for advance action
- Make sense out of 2 or more metrics
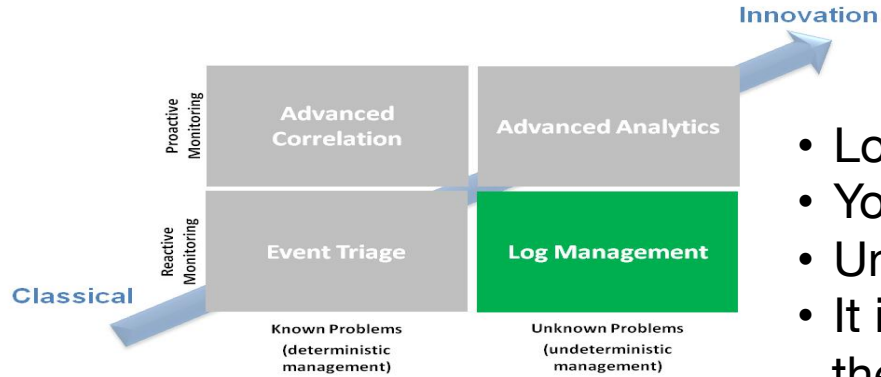- It is as good as you know the correlation
- Extended deterministic nature

Example:

- System Memory usage
- Bandwidth Utilization
- Guest OS CPU Usage with Host CPU Usage
- User Experience monitoring

Innovation

	Advanced Correlation	Advanced Analytics
Proactive Monitoring		
Reactive Monitoring	Event Triage	Log Management

Classical

Known Problems (deterministic management)	Unknown Problems (undeterministic management)

Building Performance Management
Issue Quadrant: Log Management

- Logs investigation
- You don't know what you don't know
- Undeterministic nature but reactive
- It is as good as you know what to look for in the log
- SME knowledge is required

Example:
- JDBC failed to connect because out of connection pools
- Transaction not committed due to page error
- Some user get intermittent issue with access to application

Building Performance Management
## Issue Quadrant: Advanced Analytics

Example:

- Hung processes that cause all users failed to access
- Some users failed to commit transaction due to increasing user load
- Users can't access to application due to database user credential changed

- Analytic intelligence
- Statistical analysis model
- Broad investigation with in-depth drill down
- "Perfect Storm" proactive monitoring
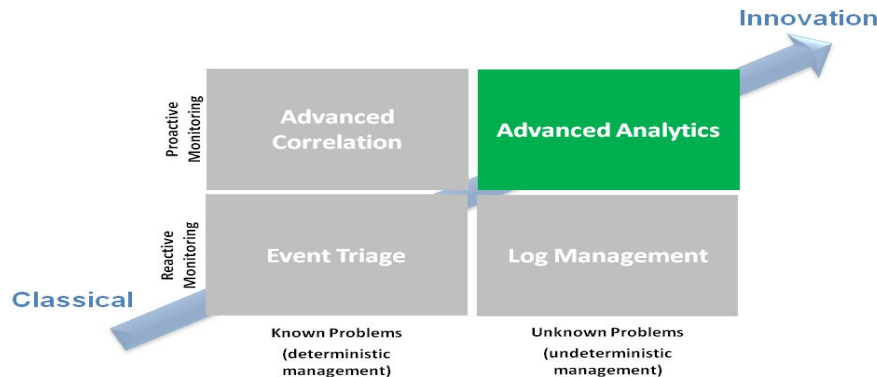
# Building Performance Management
Issue Quadrant: Objective Driven
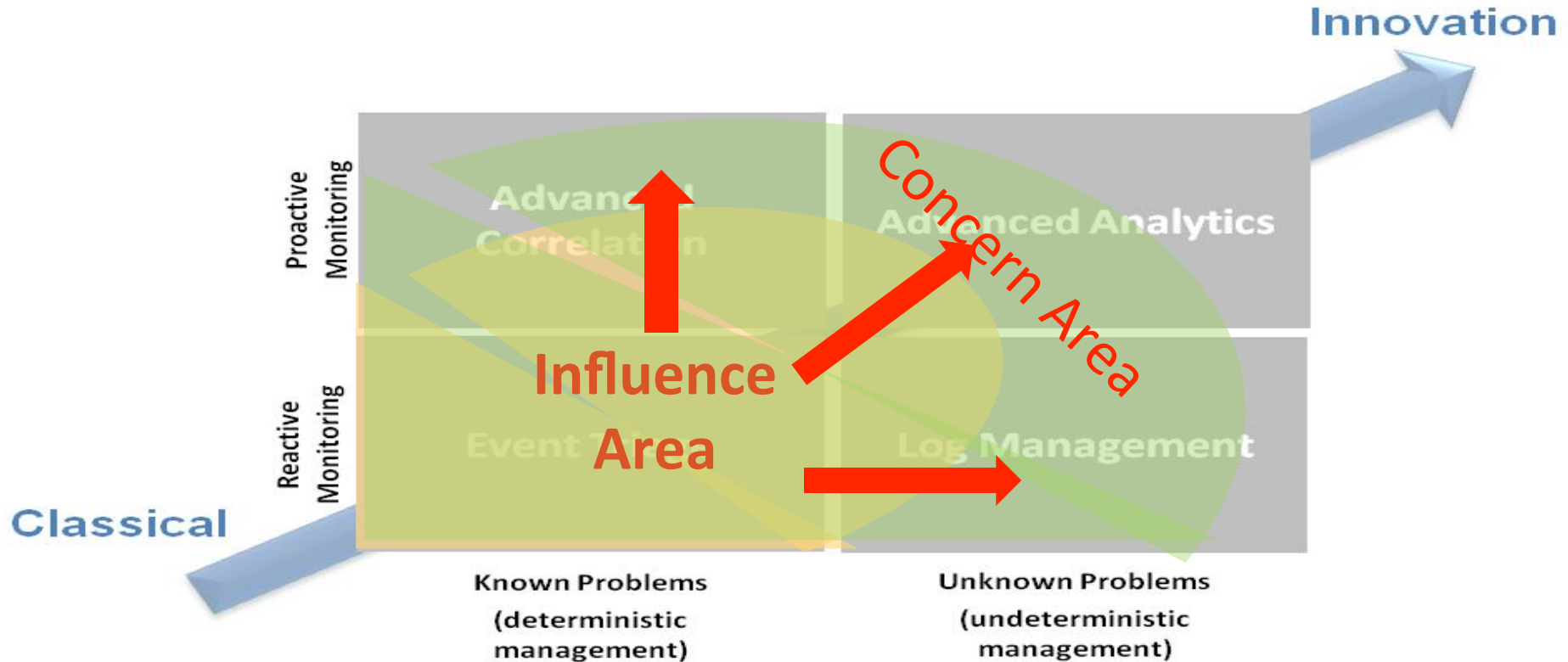
Building Performance Management
Service Health: Domain Monitoring

|	KPI Domain	Types	KPIs	Metrics
Business	Business	Bus. Service Bus. Process	Delays, Volume, Value, Backlog	•Number of Payment •BP Step Backlog
User	Application	Application Transaction	Application Availability, Application Performance	•Application Errors •Response Time •% of available TX •Num of Sessions
Infrastructure	Software	Software Element, Running Software	Software Availability, Software Performance	•DB Query Time •Num of cached pages •Service Uptime
	System	OS, Host Resources	System Availability, System Performance	•Memory Usage •CPU Utilization
	Network	Switch, Host, Load Balancer	Network Availability, Network Performance	•Latency •Num of errors •Bandwidth

Performance Assessment
Holistic Approach
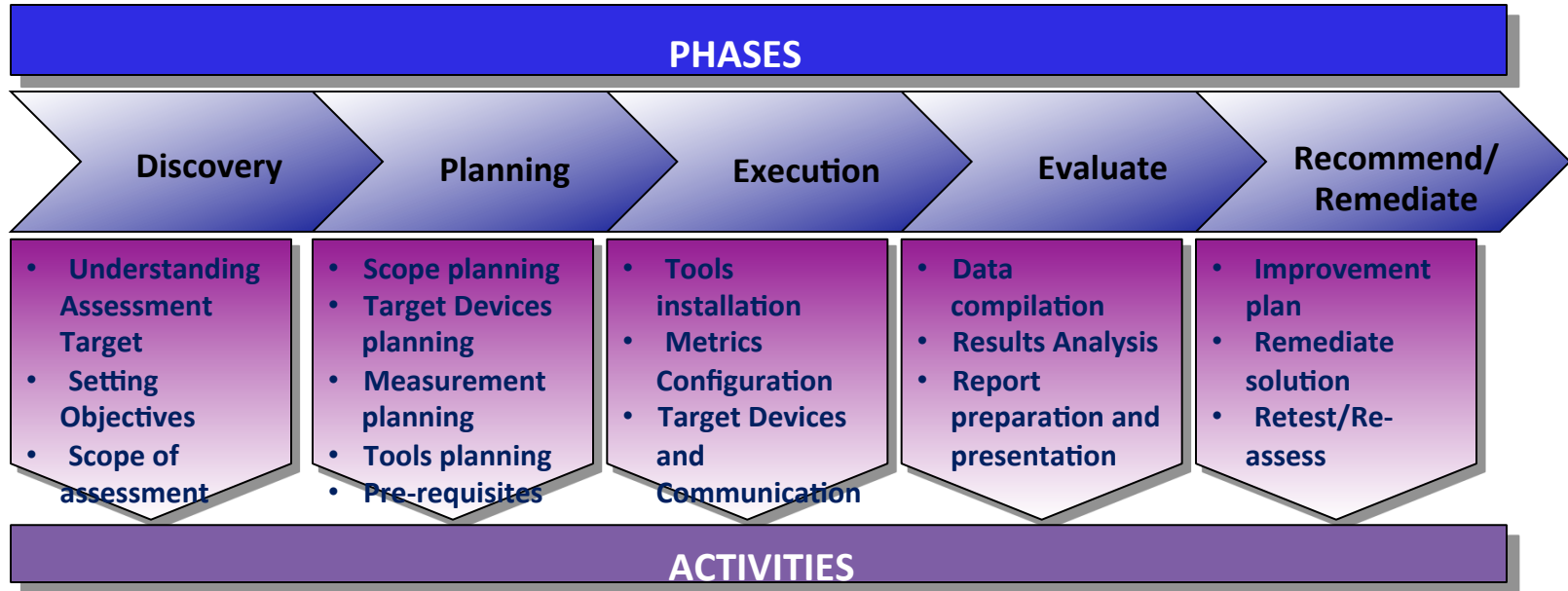
Performance Assessment
Holistic Approach: Discovery
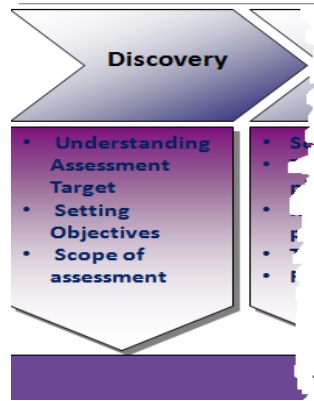
- Type of applications
  - Understanding application architecture
  - Platforms and Systems
  - Target Devices and technologies
- Assessment objectives
  - Root cause findings
  - Capacity planning
  - Performance evaluation
  - Business service definition or modeling

Performance Assessment
Holistic Approach: Planning

- Scope
  - Application discovery
  - System and Network discovery
- # of Target Devices
- Measurement Definition
  - Business metrics
  - Application metrics
  - Software, System and Network metrics
- Tools selection
  - System & Storage Tools
  - Network Tools
  - User Monitoring Tools
- Pre-requisite and customer dependencies
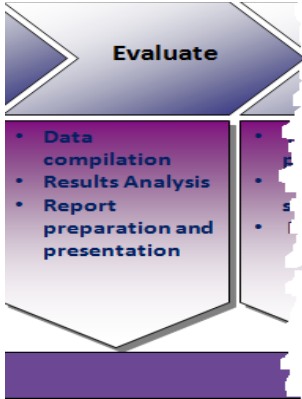
Performance Assessment
Holistic Approach: Execution
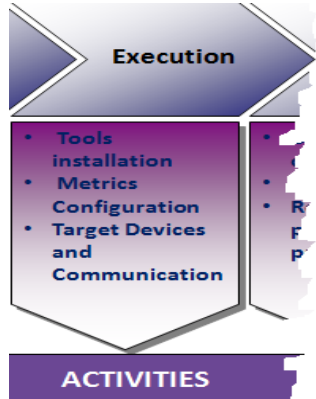
- Tools installation
  - Discovery Tools
  - APM Tools
  - Load Test Tools
  - System Monitoring Tools
  - Network Monitoring Tools
- Metric Configuration
  - Configured of defined metrics
- Pre-requisite setup
  - Firewall pre-requisite
  - Environmental setup
  - Target system pre-requisites like SNMP, Agent etc
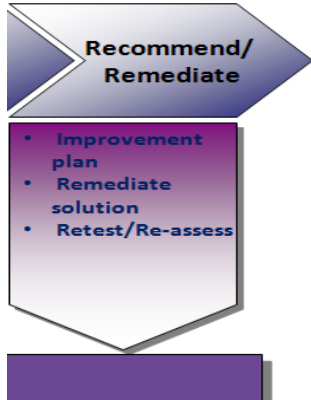
Performance Assessment
Holistic Approach: Evaluate

- Data Analysis
  - Charting of data and correlate data
  - Error logs, Load analysis
  - Resources Analysis
- Report preparation and presentation

Performance Assessment
Holistic Approach: Recommend and Remediate

Recommend/Remediate

- Improvement plan
- Remediate solution
- Retest/Re-assess

- Improvement Recommendation
  - Configuration changes like Heap Memory, Disk Volume relocation, Timeout value etc
  - System resources upgrade/replacement like RAID, Memory etc
  - Application performance tuning like coding improvement, SQL script changes etc

- Remediation
  - Jointly with application or SME team

Thank You