# IBM System z Technology Summit

Track 5 Session 1

Are you exploiting analytics to search and manage big data technologies

Speaker Name and Title

Rapid growth of data from next generation technologies can be supported seamlessly on System z

System z scaling model and security to manage and optimize both

Social, Mobile, Analytics
Smarter Infrastructure

Systems of Record

Systems of Engagement
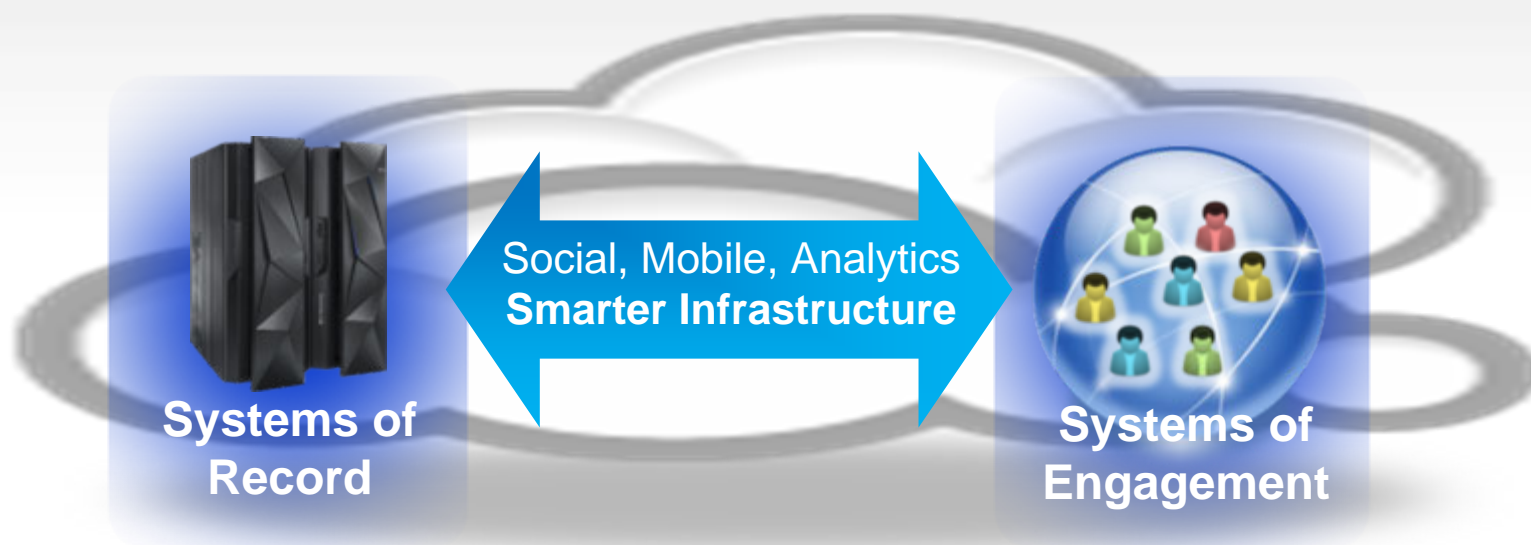
- Business Transactions
- Quality of Service
- Command & Control
- Facts and data "source of truth"
- System z

- Mobile and Social
- Dynamic
- Interactions and Collaboration
- Insight, trends, analytics

Analytics for System z addresses predict, search and optimize requirements on impact from new technology

- **Much greater amount of critical IT operational data** (SMF, log, journal) than distributed-only environments.
  - Focus on problem determination and time to resolution while placing premium on availability of services and applications**.**

- By 2016, **20% of Global 2000 enterprises will have IT operations analytics** architecture in place, up from < 1% today, looking to integrate across their enterprise to reduce outages (Gartner).

- **90% of the Fortune 1000 companies are running z** and have 'Systems of Record' dependencies for transactional processing and data serving applications .

Analytics strategy is now mission critical and impact bottom line results across all industries and IT

Industries

Banking
- Increase account profitability

Insurance
- Retain policy holders with better service & marketing

Retail
- Understand sales patterns

Telecommunications
- Reduce churn with custom retention offers

Operations

Industrial
- Predict maintenance issues before occur

Retail
- Improve store performance with P&L reports

Telecommunications
- Understand & manage network traffic

Insurance
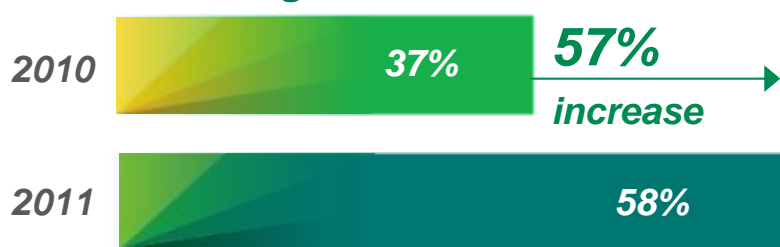- Streamline claims process

Government
- Reduce fraud and waste

Organizations using analytics have been shown to outperform competition and improve business results

More organizations are using analytics to create a competitive advantage

Respondents who believe analytics creates a competitive advantage

2010 — **37%** | **57% increase**

2011 — **58%**

Source: The New Intelligent Enterprise, a joint MIT Sloan Management Review and IBM Institute of Business Value analytics research partnership.
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And leaders are outperforming their competitors in key financial measures

1.6x **Revenue growth**

**2.0x** **EBITDA growth (pre-tax net income growth)**

2.5x **Stock price appreciation**

Source: Outperforming in a data-rich, hyper-connected world, IBM Center for Applied Insights study conducted in cooperation with the Economist Intelligence Unit and the IBM Institute of Business Value. 2012

IBM focused on managing end-to-end analytics for Big Data and applications across all platforms

Business value
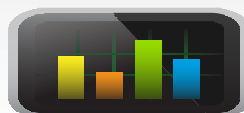
Plan and optimize

Faster problem detection and resolution

Failure Risk Estimation and Avoidance

Insight & Care

Breadth of Analytics

Predict

Predict anomalies based on events & logs

• OMEGAMON & NetView with IBM zAware
• SmartCloud Analytics - Predictive Insights

Search

Relate Log-file search with alerts and metrics

SmartCloud Analytics - Log Analysis

Optimize

Track applications & provide options on how to improve performance

Capacity Management Analytics (CMA)

Handle increased mobile workloads on z with improved data analytics for find and fix problems faster.

Performance Data

Predict

Unstructured Data

Search

Avoid Outages and service degradation through early detection of abnormalities

Improve insight though the analytical discover of metric relationships and trends

Reduce root cause analysis by reducing time to isolate faulty components in complex infrastructure

Identify problems quicker with insight to large unstructured repositories

Isolate problems quicker by bringing relevant unstructured data into problem investigations

Repair problems quicker with the right details quickly to hand.

ibm.com/it-operations-analytics

Search for and rapidly analyze unstructured data to assist in problem identification, isolation and repair

Search

SmartCloud Analytics – Log Analysis (System z)

- Faster Problem Identification and Isolation
  - Search and indexing of logs and data
  - Cross domain analysis

- Faster Problem Repair
  - Linking expert knowledge to log error/warning messages

- Improved Service Availability and Maintainability
  - Provide users with advanced insights into custom applications

Simplify and accelerate diagnostics and analysis of problems, and resolve before outage occurs
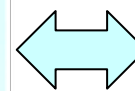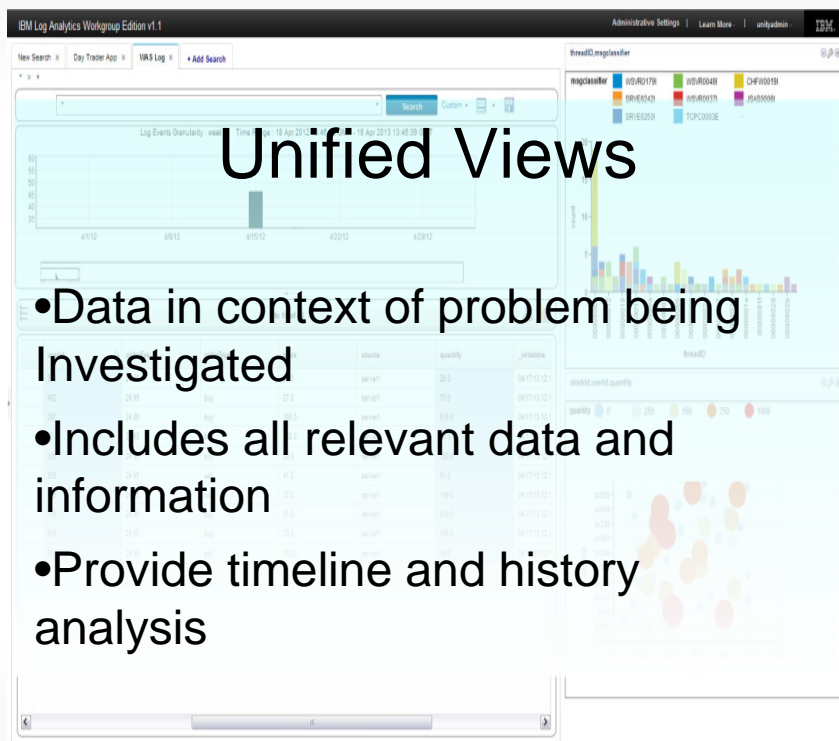
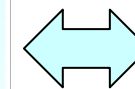**SmartCloud Analytics – Log Analysis (System z)**
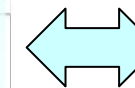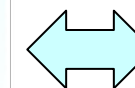
Service desk user

App support Engineer, Developer

Operations

Unified Views

- Data in context of problem being Investigated
- Includes all relevant data and information
- Provide timeline and history analysis

Logs

Metrics

Events

Support Information

z/OS Log Analysis Insight Pack next step in IBM value add for zEnterprise performance and availability management

- Matching problem information across multiple logs
- Included in SmartCloud Analytics – Log Analysis

Log Analytics

z/OS Insight Packs

OMEGAMON

System and sub-system performance monitoring

NetView

System/Network management and automation

Log Consolidation
Message Annotation
Global Search
Expert Advice
Unified Views
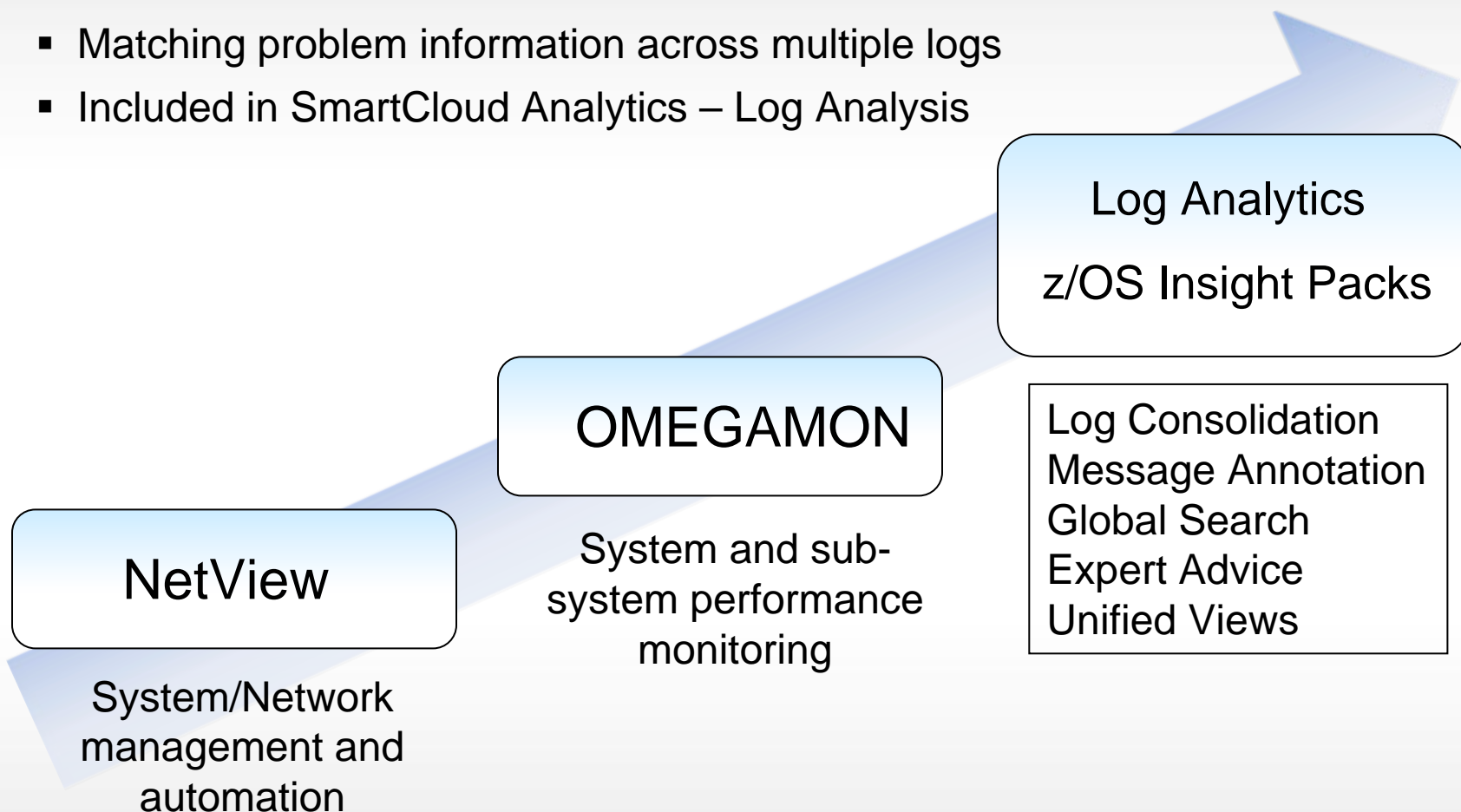
Handle more complex workloads with increasing metrics for early prediction of problems

Predict

- New next-generation **behavioural learning** and predictive analytic solution.

- Discovers how IT and Network infrastructure related from **holistic viewpoint**.

- Maximizes **early detection** of problems manifest in performance and monitoring data before service or business is disrupted (enabling prevention)

OMEGAMON works with System Automation to improve availablity and simplify operations

SA for z/OS

System
Automation

NetView

OMEGAMON Monitoring
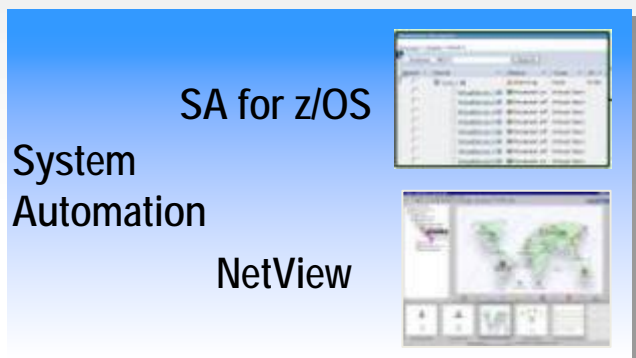
- Active or passive performance monitoring
  - Managed by automation
  - Integrated with monitor products

- Determine health state or exceeded tresholds

- Send a notification to event receiver or owner

- Start/stop/move resources

- Expert level: Cure performance problem
  - Using performance monitor, system or affected subsystem

Benefits of OMEGAMON V5 family:

- Save up to 75% of time needed to find problems
- Reduce fix times from 90 minutes to 2 minutes

Predictive Insights (PI) Analytics reports on events and anomalies that could cause future problems

Using SmartCloud Analytics – Predictive Insights

Where Operations get involved with PI

Where Operations normally get involved

UNDETECTED ANOMALY

UNDETECTED ANOMALY

UNDETECTED ANOMALY

UNDETECTED ANOMALY

UNDETECTED ANOMALY

ANOMALIES DETECTED (TOO LATE)

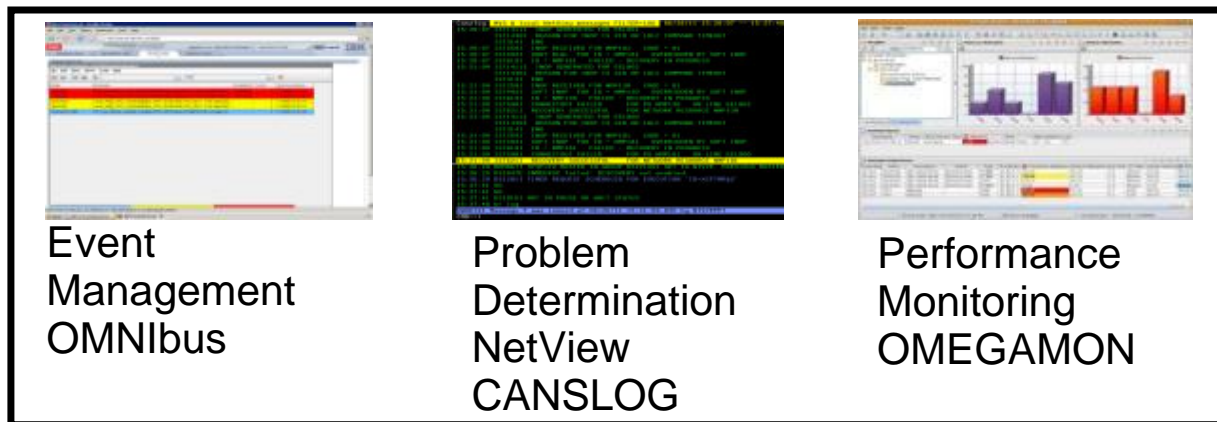**FAILURE**

NOT ENOUGH TIME TO PREVENT FAILURE
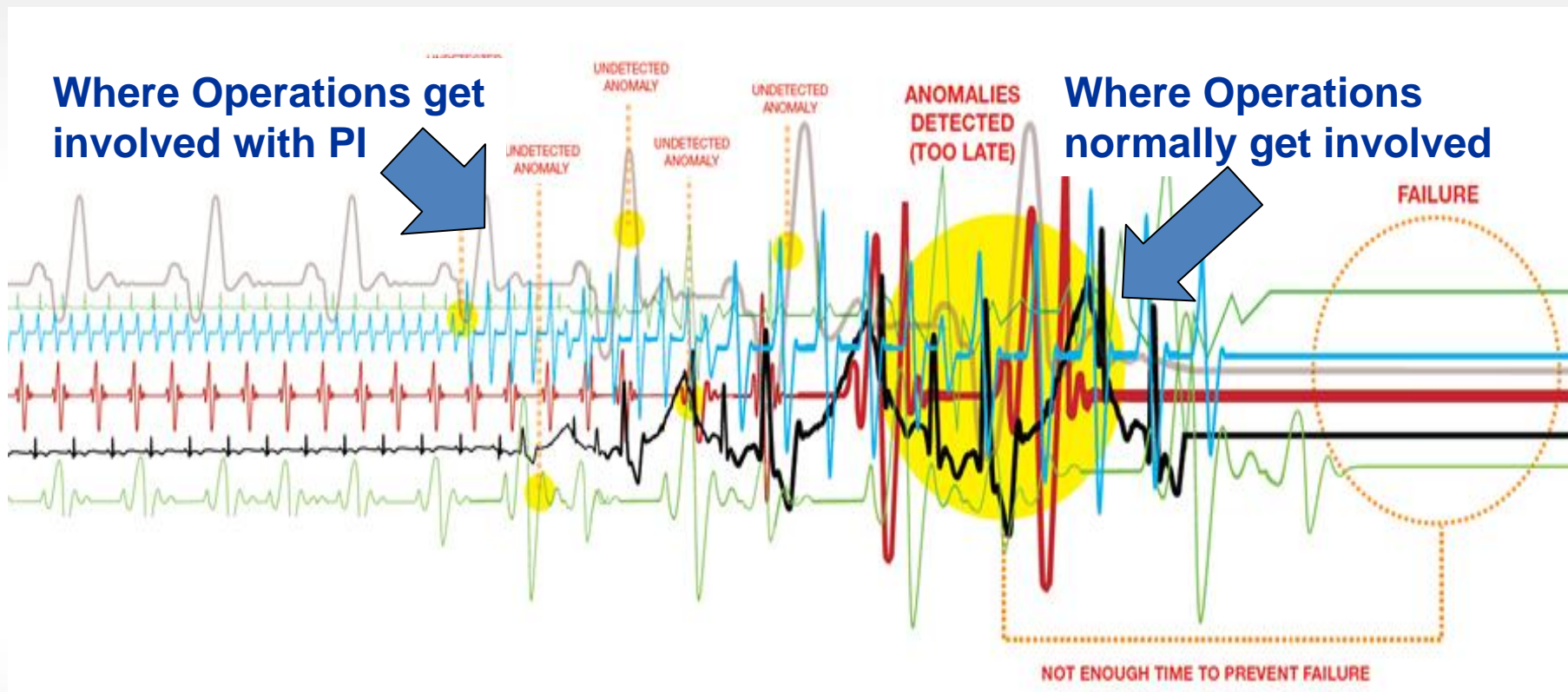
- **Operations teams can now focus more on prevention!**
- **Predictive Insights can consume data from distributed and mainframe systems**

Predictive Analysis with IBM zAware – Log Analytics on System z using Anomaly Detection

- Save money by ensuring z/OS availability (decrease time to perform problem determination and lower Mean time to Repair)

- Problem isolation and management (NetView/OMEGAMON) and event visibility (OMNIbus)

Predict

Event
Management
OMNIbus

Problem
Determination
NetView
CANSLOG

Performance
Monitoring
OMEGAMON

IBM zAware

Surface
Anomalies

Optimize Big Data and applications to create knowledge for easier business and IT planning

Capacity Management Analytics (CMA) solution

- Analytics, monitoring and management across Big Data on System z environment including CICS, DB2, IMS, WAS

- Insights into operations with TDSz, SPSS and Cognos

- Focuses on data related to System and Workload Characteristics, Performance and Trending

- Provides recommendation to optimize Systems and Workloads based on Predictions and Forecasting

Optimize

IDC forecast projected worldwide big data technology and services market will grow at 31.7% CAGR - 21.1% services and 53.4% storage.

http://www-03.ibm.com/software/products/en/capacity-management-analytics/

Capacity Management Analytics supports key customer requirements for improved business agility

- **System/Workload Characteristics, Performance and Trending**

  – What's driving demand?

  – Capacity constraints causing bottlenecks and what's being impacted

  – Anomalies occurred that impacted resource usage and/or performance

- **System/Workload Optimization, Prediction and Forecasting**

  – Available capacity to move workloads / applications to alleviate bottlenecks

  – Balance resource usage across servers/LPARs/VMs and defer capacity upgrade

  – Enough available capacity to add new workloads/applications to current environment

IBM Capacity Management Analytics provides cost effective, optimal use of zEnterprise capacity

A single, integrated cost effective solution

System Management:
Problem Identification & Resolution
Capacity Forecasting & Monitoring

Manage the complete time horizons

Historical reporting of past performance
Forecasting future requirements
**Right-time optimal decision making**

Jumpstart your time to value & ease implementation.

Built on IBM's easy of use analytics
Includes prepackaged, interactive reports
**Optional services and education**

IBM Capacity Management Analytics: Systems Management

Dashboard & report capabilities provide executives, managers, capacity & performance specialists with custom views
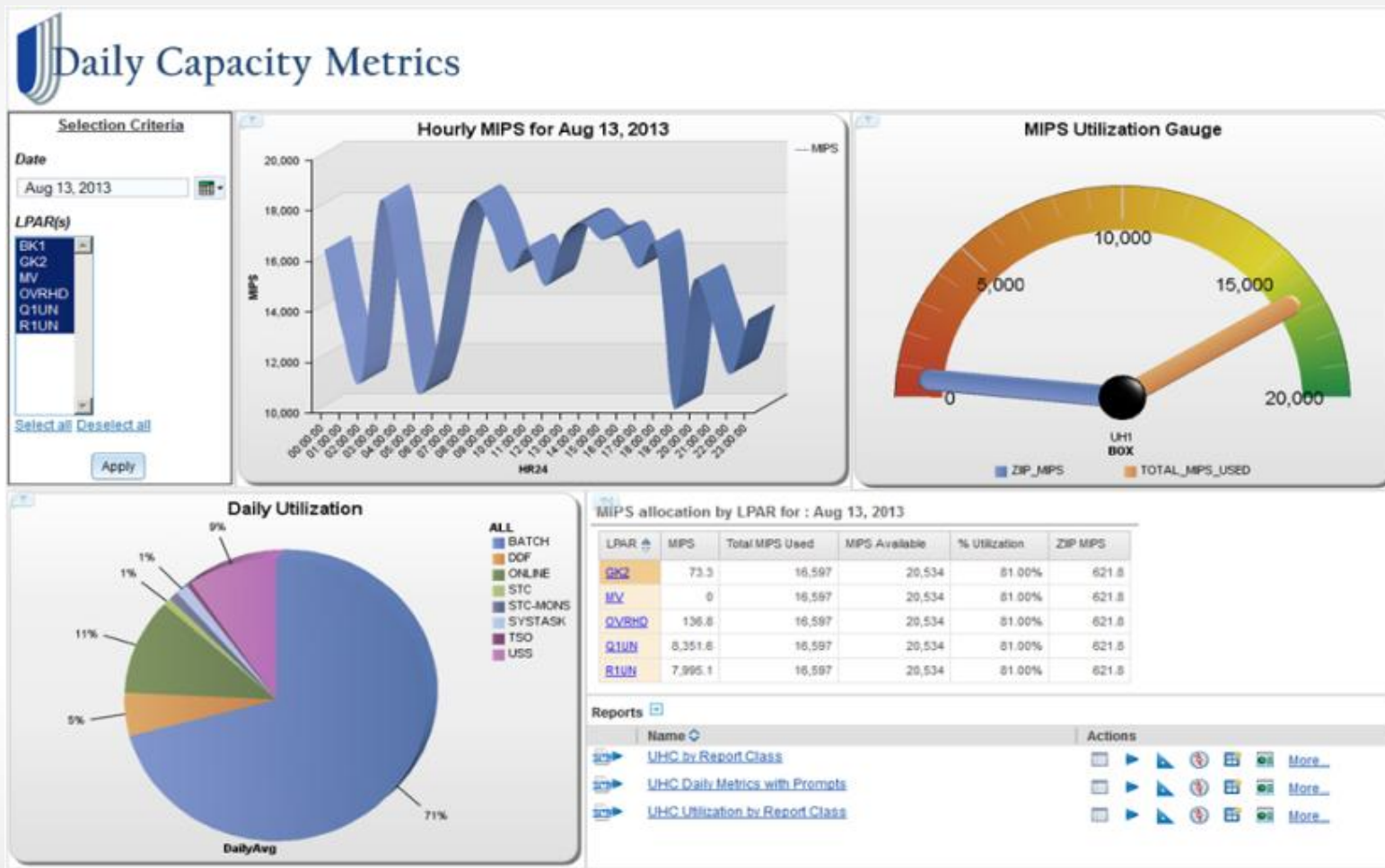
IBM Capacity Management Analytics: Predictive Analytics, Capacity Forecasting & Real-time Scoring
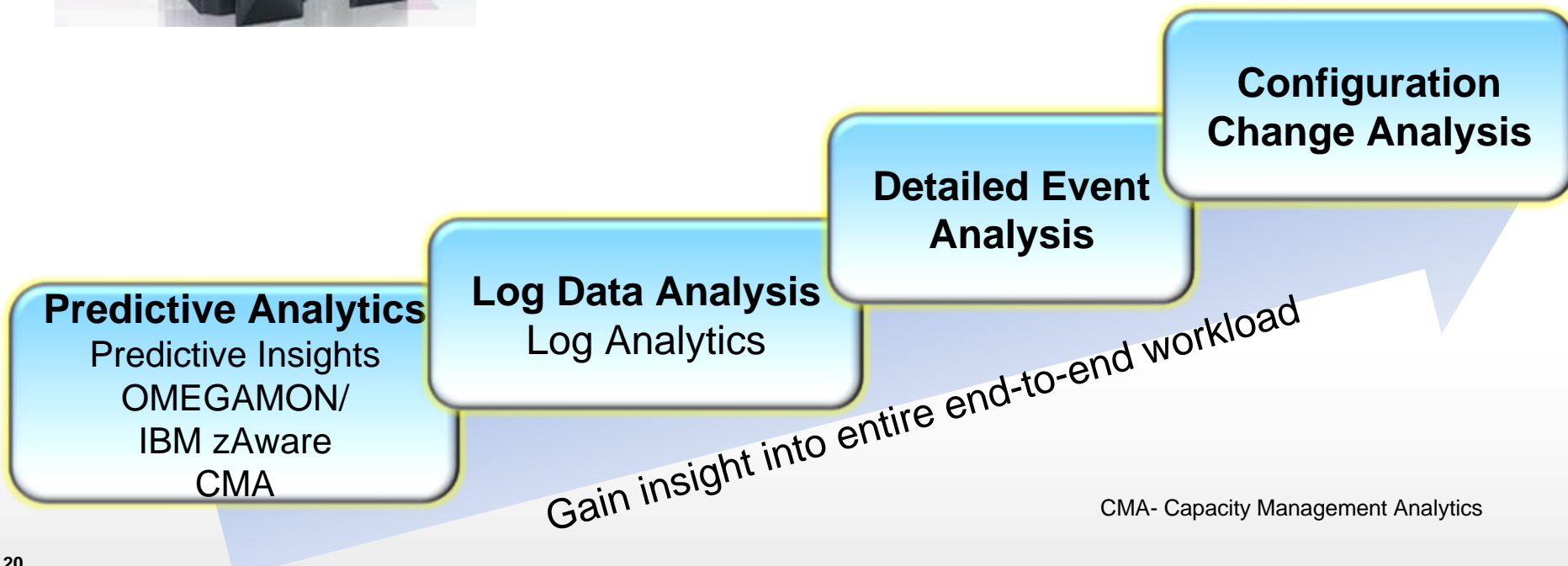
- Predictive analytics helps organizations use data to make better decisions
  - Draw reliable, data-driven conclusions about current conditions and future events.
- Requirements forecasted to ensure sufficient capacity available when business needs it.
- Real-time scoring of transactions performed enabling comparison to forecast.

CPU: MIPS Used zServer/LPAR Level w/Forecast
CPU SERIAL NO = A1A1, PROCESSOR TYPE =CP
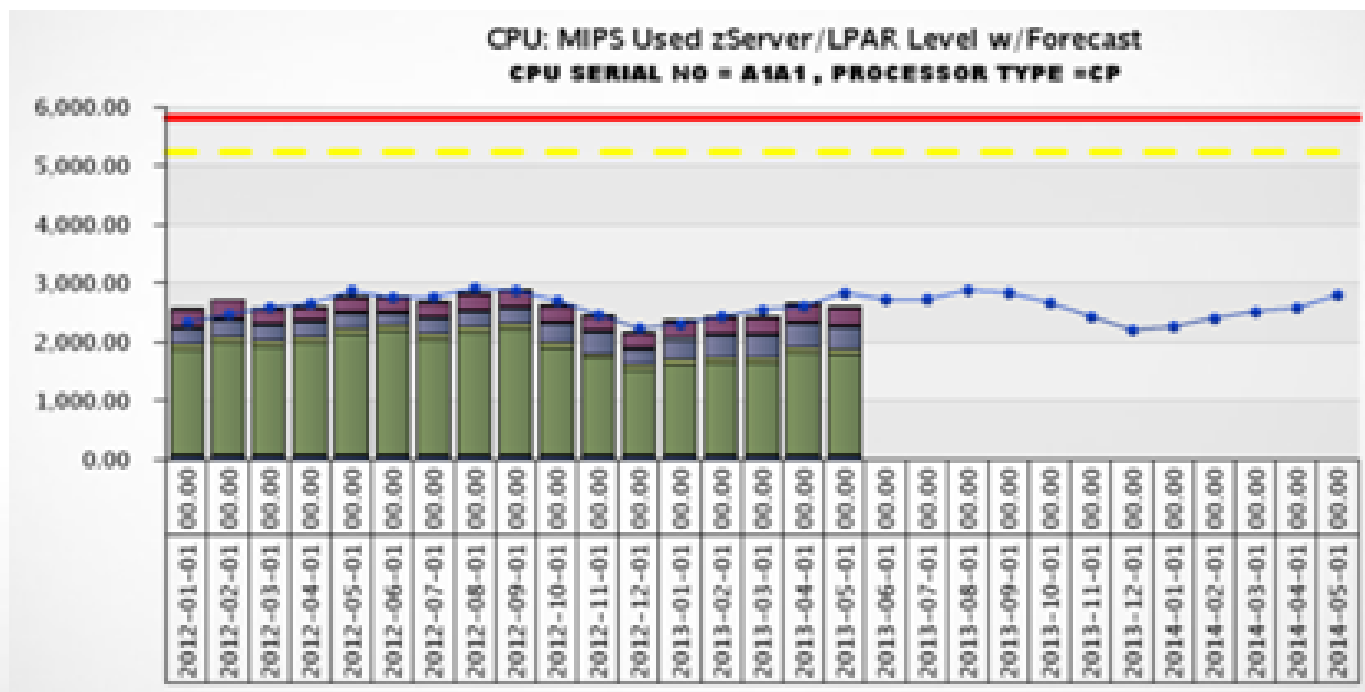
IBM System z analytics improving ability to reduce risks by adding capability over time

- Operators and subject matter experts overwhelmed with volumes of data to be manually processed
- Enhance current tools with analytics for more efficiency and productivity
- Add additional analysis capability over time

Configuration Change Analysis

Detailed Event Analysis

Log Data Analysis
Log Analytics

Predictive Analytics
Predictive Insights
OMEGAMON/
IBM zAware
CMA

Gain insight into entire end-to-end workload

CMA- Capacity Management Analytics

Learn more about Analytics on z at Pulse 2014

- System z track: Over 40 sessions
    - Customer, Analyst and Business Partner Sessions
- Meet the Experts
- Demos and Hands on Labs

http://www-01.ibm.com/software/os/systemz/pulse/index.html

Thank You

Learn more:

http://www-01.ibm.com/software/os/systemz/itsm/