

A decorative graphic in the top left corner consists of several overlapping circles of various colors (yellow, orange, red, purple, blue) that are divided into segments, resembling a stylized sun or a cluster of data points.

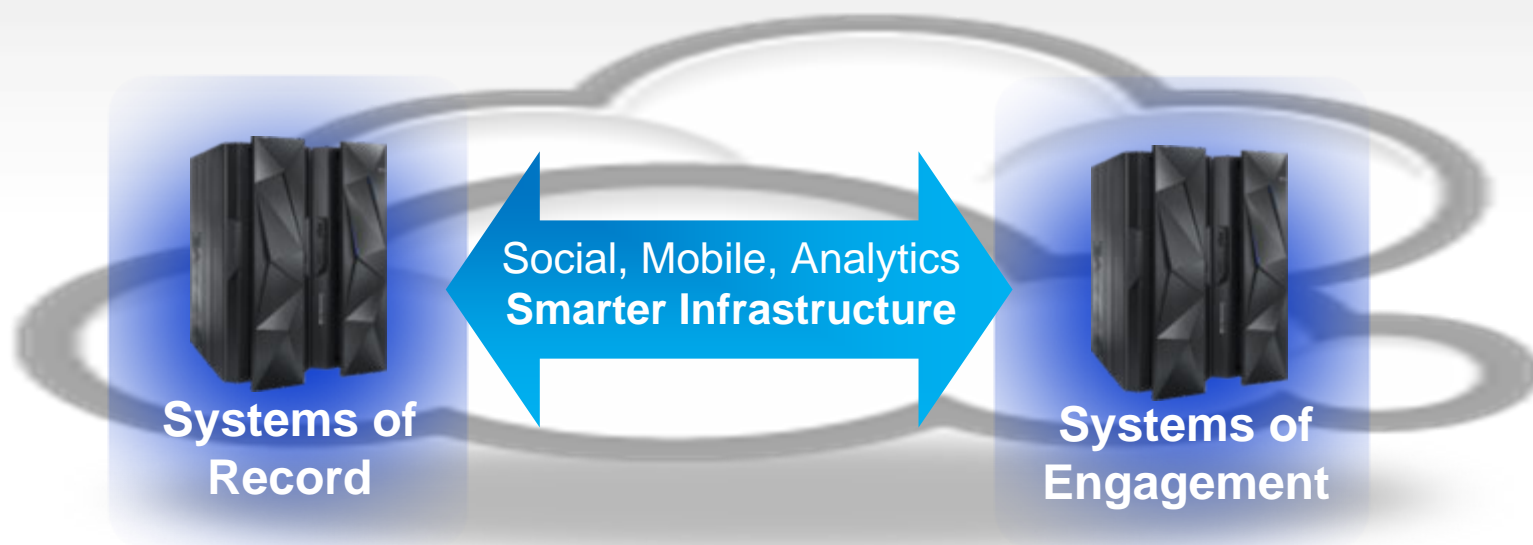
# IBM System z Technology Summit

## Track 5 Session 1

Are you exploiting analytics to search and manage big data technologies

# 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



- 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

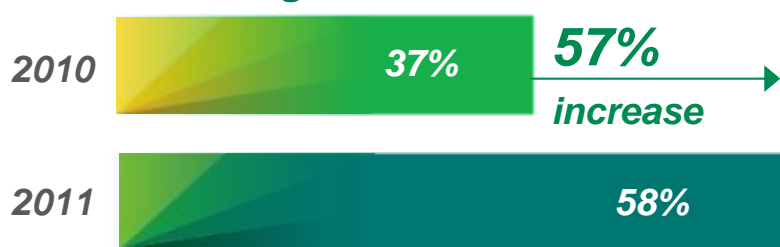
### Government

- 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**



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



**Gain Cloud Insights**

**Predict:**

- Pro-Active Outage Avoidance
- Predict Problems before occurrence

**Search:**

- Quickly analysis large volume of log data
- Match Log-files with alerts and metrics

**Optimize:**

- Improve Performance across IT Infrastructure

## *IBM Analytics solutions for System z*

**Predict**

- OMEGAMON & NetView w/ IBM zAware
- IBM Cloud Analytics - Predictive Insights

**Search**

IBM Cloud Analytics -  
Log Analysis z/OS  
Insight Packs

**Optimize**

Capacity Management  
Analytics (CMA)



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

## Performance Data



**Avoid Outages** and service degradation through early detection of abnormalities

**Improve insight** through the analytical discover of metric relationships and trends

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

## Unstructured Data



**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.





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



## 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

## Challenges

- No warnings before outages
- Reactive application resets to restore service.
- Root cause of outages unknown

## Search

IBM Cloud Analytics -  
Log Analysis z/OS  
Insight Packs

## Results

### Internet Banking

Up to 3 day advance warning of outages, 10 major incidents in 4 weeks. Savings of \$600K.

### Communications Company

\$300K of cost avoidance annually.

### Traditional Banking

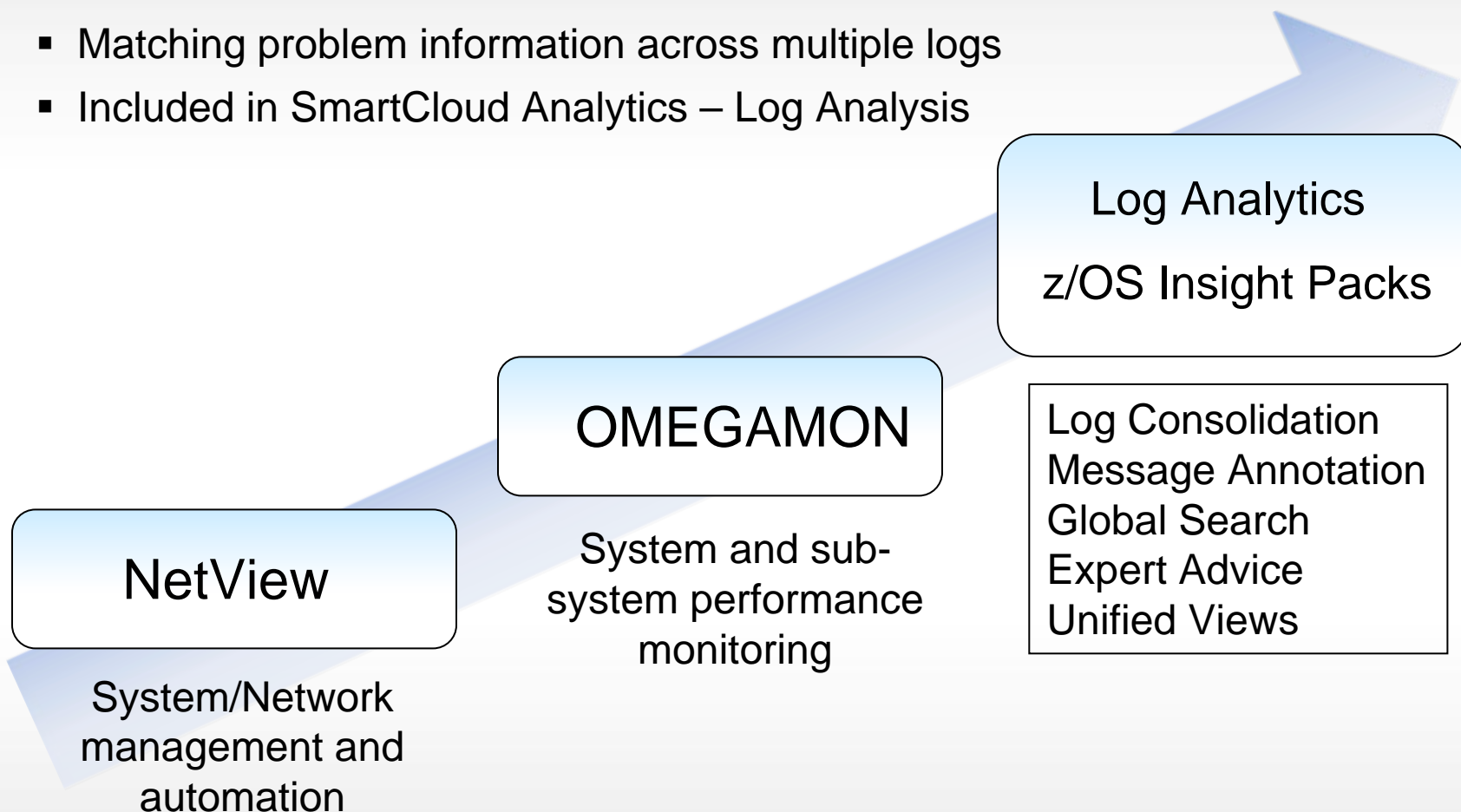
Outages reduced by 70%-80% due to problem isolation





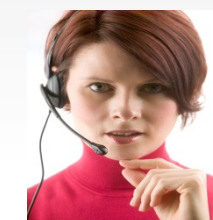
# z/OS Log Analysis Insight Pack next step in IBM value add for zEnterprise performance and availability management

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



# Simplify and accelerate diagnostics and analysis of problems, and resolve before outage occurs

## SmartCloud Analytics – Log Analysis (System z)



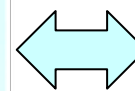
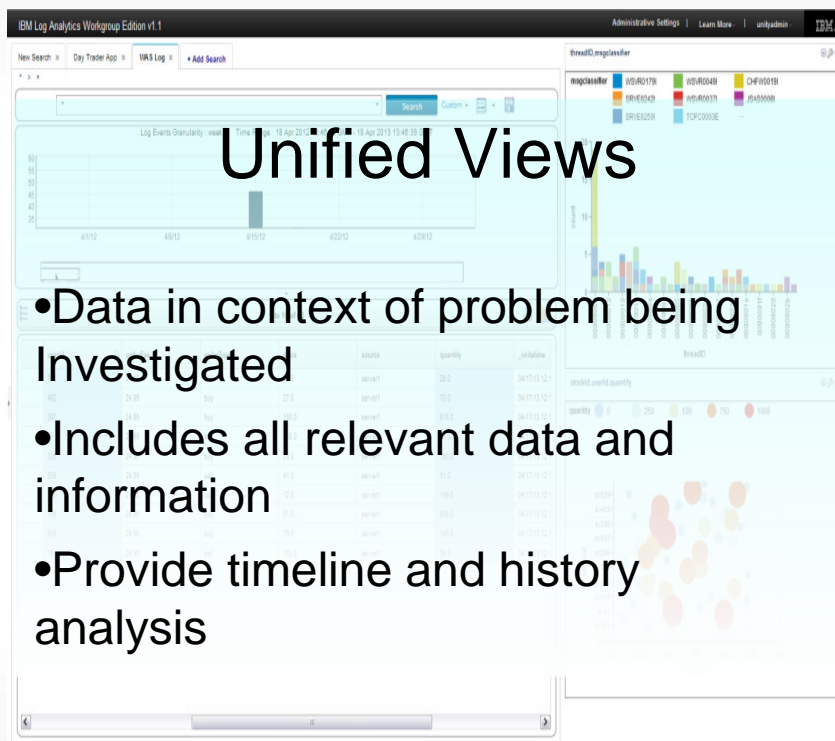
Service desk user



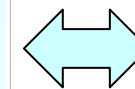
App support Engineer, Developer



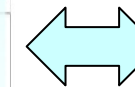
Operations



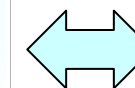
Logs



Metrics



Events



Support Information

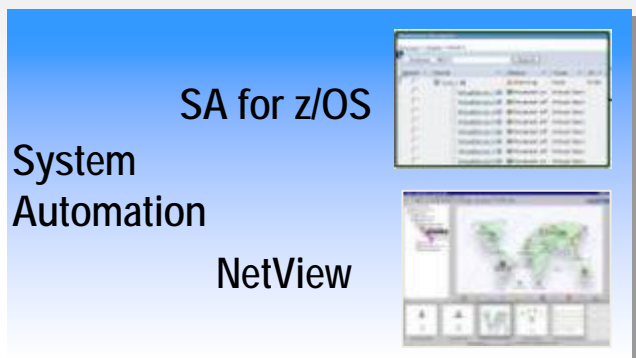


## Handle more complex workloads with increasing metrics for early prediction of problems



- 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 availability and simplify operations



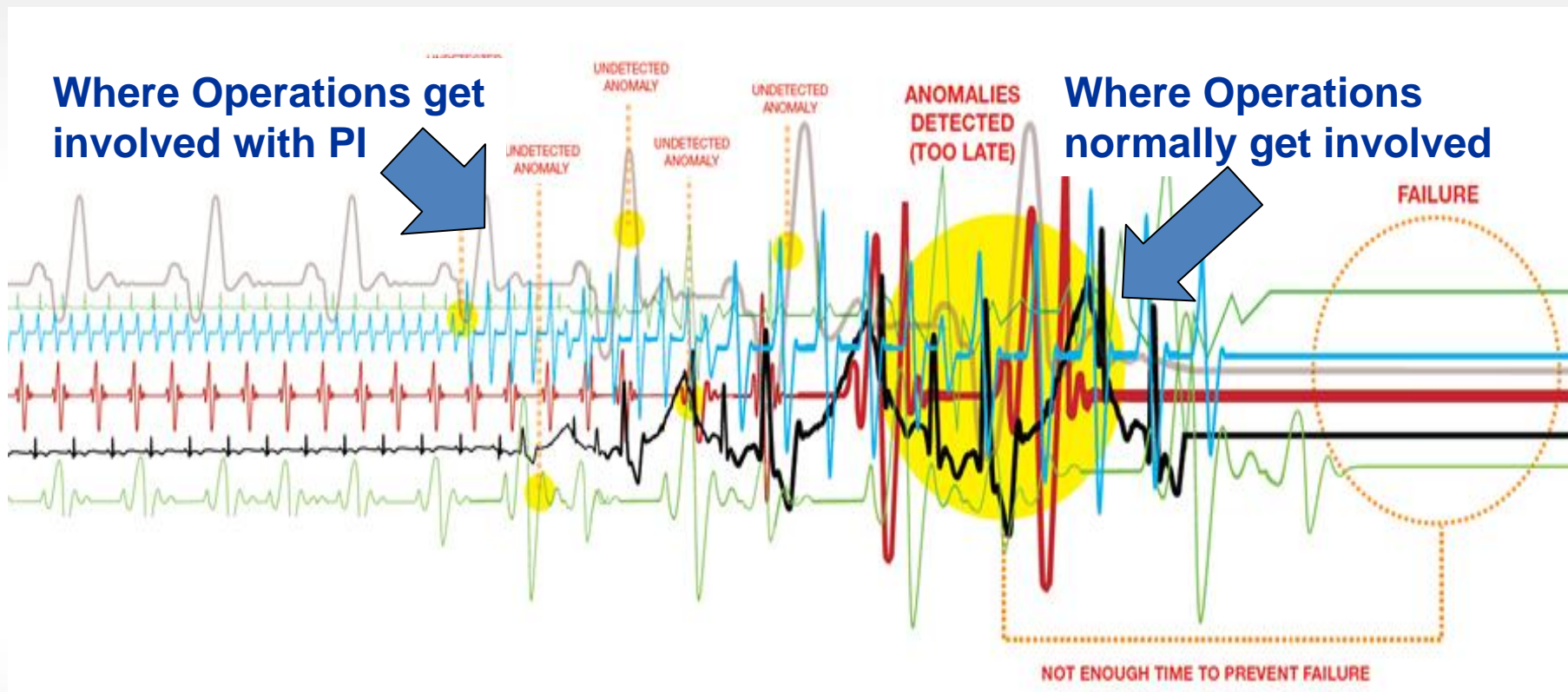
- Active or passive performance monitoring
  - Managed by automation
  - Integrated with monitor products
- Determine health state or exceeded thresholds
- Send a notification to event receiver or owner
- Start/stop/move resources
- Expert level: Cure performance problem
  - Using performance monitor, 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



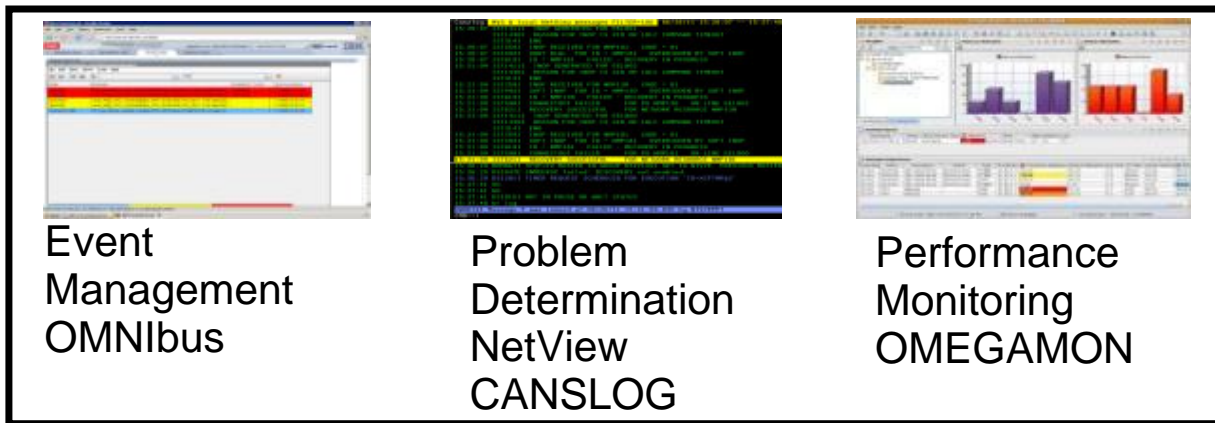
- Operations teams can now focus more on prevention!
- Predictive Insights can consume data from distributed and mainframe systems



# 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**



IBM zAware







# 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



<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**

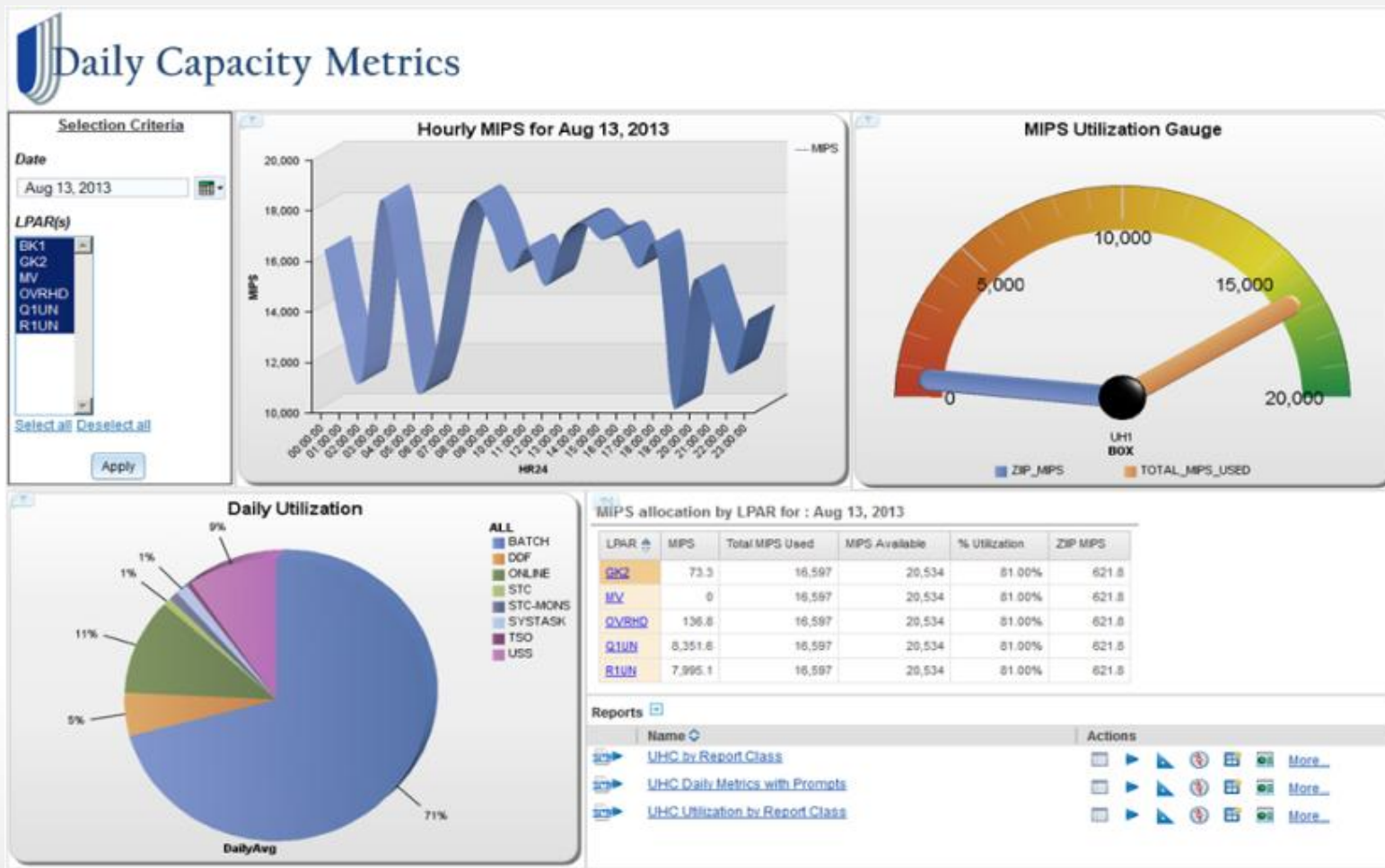
**Jumpstart your time to value & ease implementation.**



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

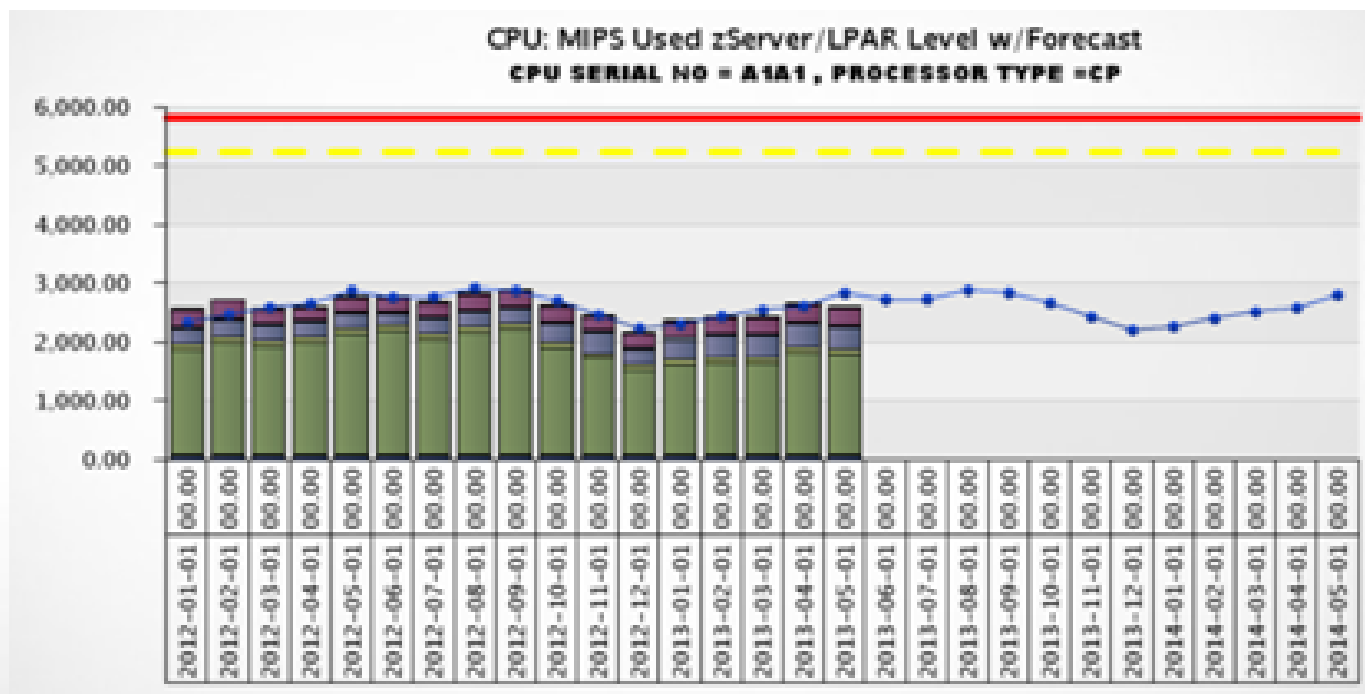
# IBM Capacity Management Analytics: Systems Management

Dashboard & report capabilities provide executives, managers, capacity & performance specialists with custom views



# IBM Capacity Management Analytics: Predictive Analytics, Capacity Forecasting & Real-time Scoring

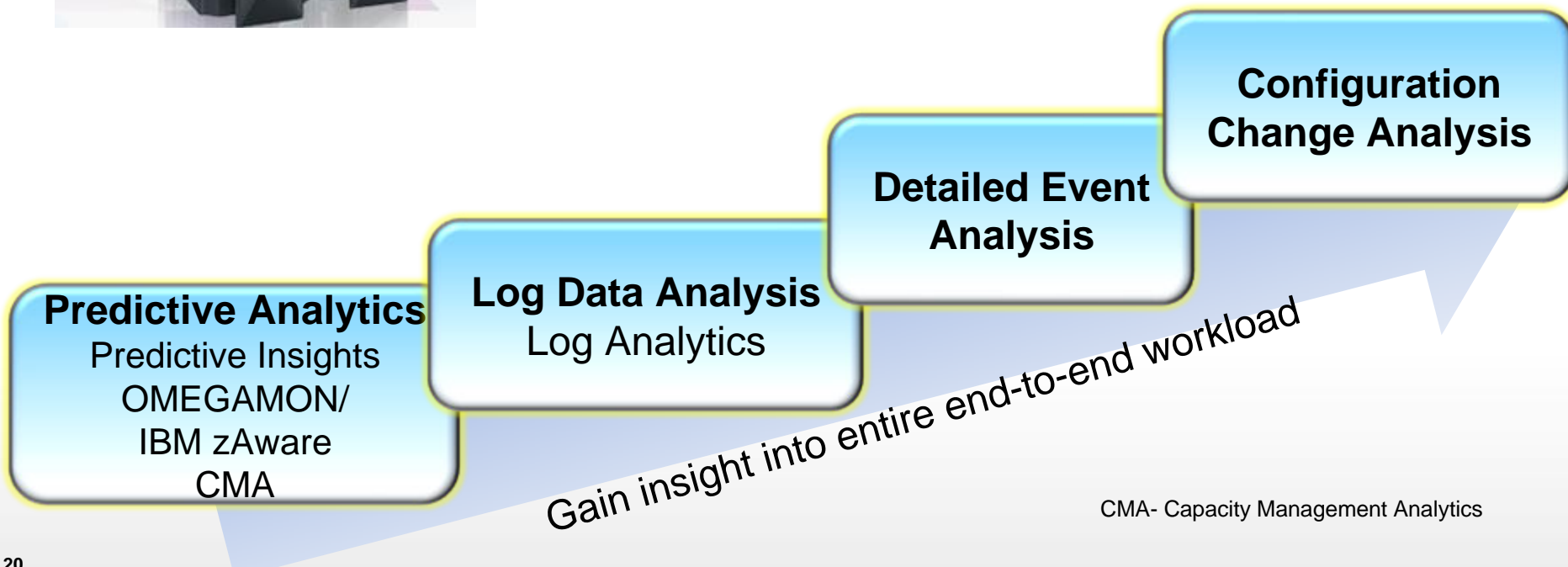
- Predictive analytics helps organizations use data to make better decisions
  - Draw reliable, data-driven conclusions about current conditions and future events.
- Requirements forecasted to ensure sufficient capacity available when business needs it.
- Real-time scoring of transactions performed enabling comparison to forecast.



# 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





# Thank You

**Learn more:**

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