



## The value of managing physical assets on System z for asset-intensive industries

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# Agenda

- What is Enterprise Asset Management (EAM)
- Impact and Value of Enterprise Asset Management
- Enterprise Asset Management Capabilities on System z
- Maximo Industry Solutions



## Who depends on the world's physical infrastructure industries



*Businesses  
depend upon  
infrastructure to  
meet their goals*

\$447 Billion is spent  
globally on  
maintenance



*People depend  
on infrastructure  
to live their lives  
and pursue their  
dreams*

Rail will support 4.8  
trillion passengers  
growing 4.8%  
annually by 2020  
globally



*Societies  
depend upon  
infrastructure to  
care for its  
citizens*

In the last 100 years,  
water use has been  
growing twice as fast  
as the population

The world's infrastructure comes in many forms and is the underlying foundation for any organization or community

# Asset Classes

## Plant & Production



Manufacturing, Mining, Chemical, Petroleum, Electronics, Life Sciences, Power Generation

## Facilities & Real Estate



Offices, Retail Stores, Hospitals, Schools, Military Bases, Museums, Hotels

## Transportation & Fleet



Vehicles, Aircraft, Marine Vessels, Transit, Locomotives, Airports, Seaports

## Linear Assets



Runways, Roads, Tunnels, Railroads, Electric/Gas Distribution, Telecom, Water Mains

# What Assets Do You Depend On?

<b>Manuf</b>	Tools	Signalling	Keys	Support Equip	Manufacturing	Recreation	Safety & Survival Gear	Milling	Personal Security	
<b>Energy</b>	Turbines	Reactors	Fire Suppression	Ventilation	Offshore	Boilers	Drilling	Generators	Wind Turbines	Solar
<b>Transport</b>	Trains / Rolling Stock	Ships	Trucks	Buses	Aircraft	Military	Space	Navigation	Avionics	Engines
<b>Facilities</b>	Buildings	Campus	HVAC	Lighting	Keys Mgmt	Escalators	<b>IT Assets</b>			
<b>Utilities</b>	Cabling	Power Transmission	Water Distribution	Meters & Measurement	Waste & Treatment	<b>Linear</b>				
										Rails
<b>Life Sci</b>	Calibrated Equip	Medical Supplies	Compressed Cylinders	Pharmaceuticals	Lab Equipment	<b>Comm</b>				
										Microwave & Satellite

# IBM Maximo - Asset Management for a Smarter Planet

Transportation Assets      Facilities      Production Equipment      Infrastructure      Communications

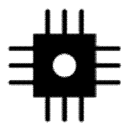


A smaller, flatter, faster and “smarter” planet



## Maximo’s role in a Smarter Planet:

- The IBM system to manage physical assets
- Visibility, control, and automation across operational infrastructure
- Optimized operational processes to achieve more with less
- Managing both the asset and the service to deliver customer value



INSTRUMENTED



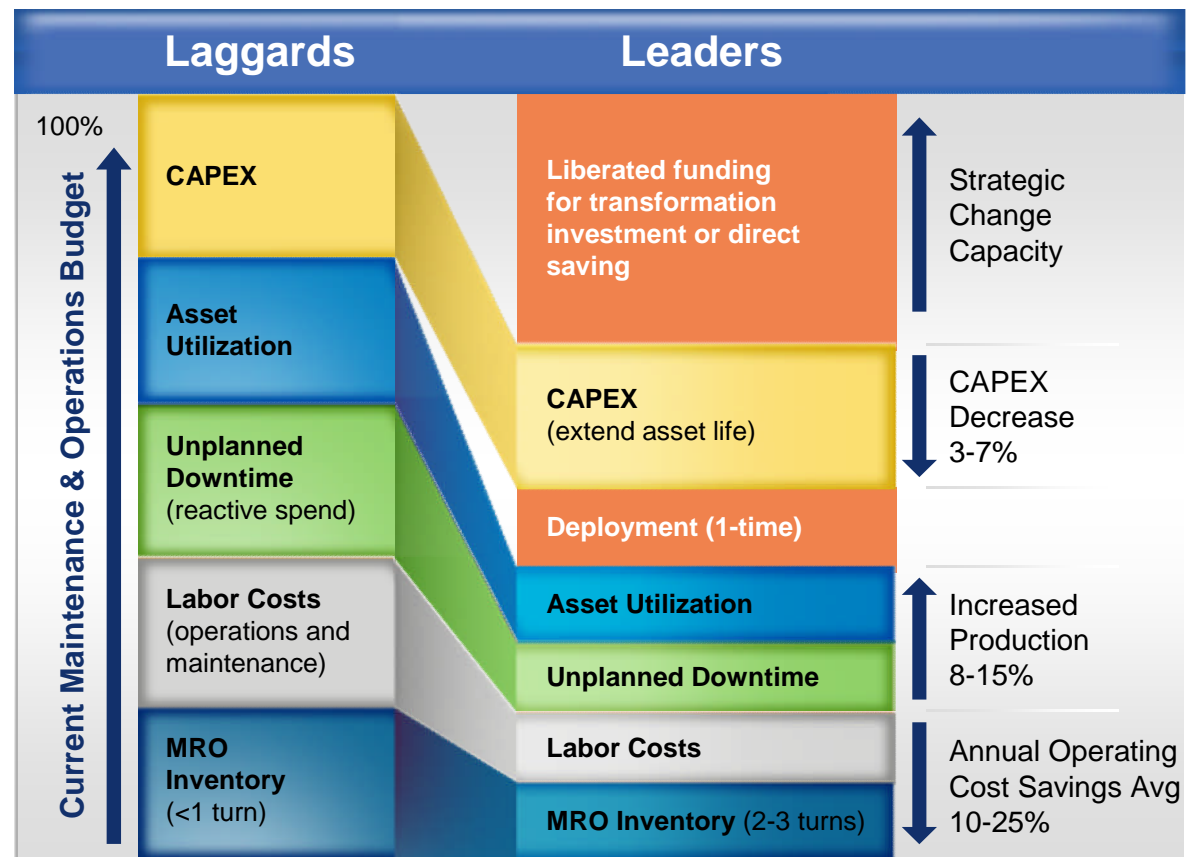
INTERCONNECTED



INTELLIGENT

## Enterprise Asset Management (EAM) is a critical application for asset intensive industries

- Contributes to the bottom line
- Asset performance creates saleable capacity or reliability
- Inhibitors to success:
  - Too much investment in Inventory
  - Labor spent on non Value Add Activity
  - Resulting Downtime impacts availability



## Industry Leaders Use EAM as a Competitive Advantage

## Maximo on System z has broad appeal in asset intensive industries



Energy & Utilities



Industrial



Public Sector



Oil & Gas



Life Sciences



Transportation



Telecom



Financial Services



Other

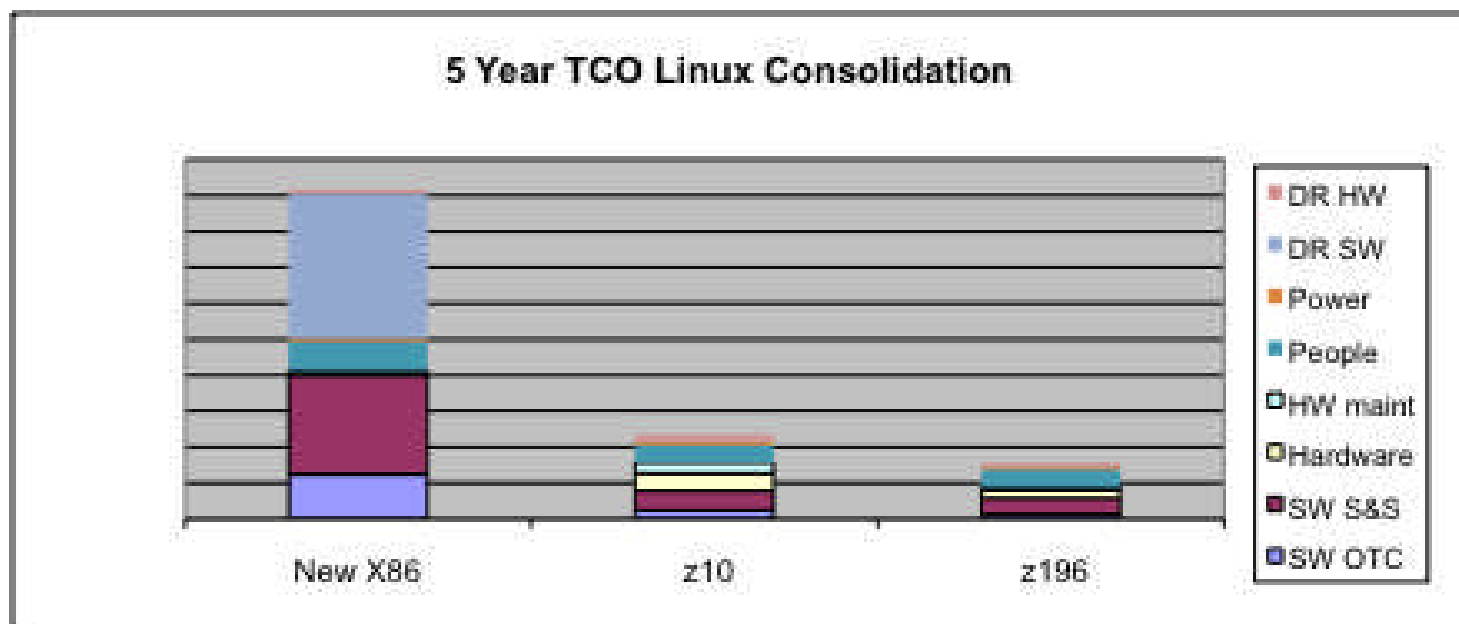


## Introducing Maximo on System z (zLinux)

- The component-based Internet architecture of Maximo Asset Management supports optimal scalability and performance
- Maximo Asset Management on System z offers a fit-for-purpose platform with distinct advantages especially for accounts with over 100 users.
- The System z approach to failover is unique in the industry and very attractive to clients who require high availability.
- System z offers a significant advantage over working with multiple Intel servers in a distributed environment
- System z's architecture easily supports common application stacks that include EAM, ERP, ECM, BI integration.
- System z runs IBM DB2 or Oracle database
- DB2 and Websphere are tuned to run optimally on System z.

## Maximo on System z (zLinux) – Benefit: Lower TCO

- Reduced initial acquisition costs by taking some costs out of the solution
  - System z requires fewer servers, licenses, processors, etc
- Reduced operational and deployment risks, while meeting the original schedule
- Reduced operational costs, smaller footprint and energy costs
- Improved the security and resilience of the deployed solution
- Able to meet service level goals (number and type of users, response time, etc)



Data based on case study of a government agency implementing Maximo on System z (zLinux)

## Maximo on System z (zLinux) – Benefit: Lower TCO

- System z10 hardware never changes. Server is fully configured from the start.
- Addition resources such as processor and memory are made available by license key
- Pricing varies depending on usage – active processor, backup, etc
- The System z platform eliminates the need for additional database server licenses that are required when running on distributed servers.
- With a distributed system, clients must purchase complete duplicate systems including software licenses
- Dramatic costs differences are evident between System z and a distributed system.

## Maximo on System z (zLinux) – Additional Intangible Benefits

### **Security**

- Fewer points of intrusion
- Inhibits malware due to Storage protection
- Data privacy via hardware crypto

### **Resilience**

- Fewer Points of Failure
- Redundant hardware components
- Improved uptime
- Disaster Recovery for a fraction of cost

### **Performance**

- Avoid Network Latency

### **Simplified Operation**

- Fewer parts to manage
- Common problem determination
- Consistent storage management
- Faster, easier server provisioning

### **Environmental**

- Less real estate, less electricity, less cooling

### **Capacity Management**

- On Demand additions/deletions
- Goals for production, test, development
- 100% CPU utilization

## Modernization, cost avoidance and investment protection with Maximo on System z

### Business Challenge:

- Government agency wanted asset management solution for physical assets (e.g. vehicles, equipment)
- Needed to deploy environment to support 5000 users

### IBM Solution:

#### Software

- IBM Maximo Asset Management for System z
- Oracle DB for Linux on System z
- Red Hat Enterprise Linux R10

#### Servers

- System z10 Server with 28 IFLs

### Business Benefit:

- Leveraging unused processors on System z
- Deploy in 1/3 time of x86 servers and no additional energy costs
- Software license charges were \$1 million less on System z
- Disaster Recovery was included in the System z, where it would double x86 costs



## IBM Maximo Asset Management for Life Sciences on System z - Providing better Calibration capabilities

IBM Maximo for Life Sciences is an Industry Solution that contains Maximo EAM, Maximo Calibration and Compliance Assistance Documentation. It helps monitor, track and manage equipment, facilities, mobile and IT assets on a single platform and is fully FDA compliant.



### Capabilities

- Support of electronic signatures and audits
- Provide a set of Compliance Assistance documents to support validation projects
- Full integrated Calibration capabilities
- Supports Corrective and Preventive Action (CAPA) processes
- Supporting Manufacturing Concepts as Reliability Centered Maintenance (RCM), Total Productive Maintenance (TPM), Lean Manufacturing principles as well as Six Sigma

## IBM Maximo Asset Management for Oil & Gas on System z

- Expanding support for integrated operations and maintenance processes

Maximo for Oil and Gas focuses on operational excellence, specifically, improving safety, reliability, and compliance performance while reducing costs through standardization, convergence, collaboration and the adoption of better operational practices. The v.7.5 release has many new enhancements to support integrated operations and maintenance processes.



Oil & Gas

### Recent Enhancements

- New non-conformance tab to handle non-conformance and defect elimination
- Incident management enhancement to add multiple persons affected by an incident and an ability to associate a regulation with an incident
- ISO 14224 failure reporting enhancements extending failure reporting on work order tracking
- Qualification and People enhancements linking qualifications to permit and certificate types and confirmation that certification is achieved

## IBM Maximo Asset Management for Utilities on System z

– Providing better support for smart meters and regulatory tracking: NERC CIP

IBM Maximo for Utilities solution offers integrated work and asset management for transmission and distribution in water, gas and electric utilities. It provides industry specific capabilities to support compatible unit estimating (CUE), crew management, tracking of labor skills and certifications, integration with fixed asset accounting, mobile workforce management, design tools and spatial (GIS) enablement.



### Recent Enhancements

- Meter Asset Management capability: generate work orders for meter sampling, replacement or retiring
- New T&D application for bulk receiving, issues and transfers by lot or pallet. Job plans and work orders support prerequisite job activities (permits).
- Standards based estimation of work.
- Service address application supports geo-locating of assets, locations and work
- Track and report regulatory compliance related work and activities
- Public maps supported with Maximo Spatial in addition to company map data



## IBM Maximo Asset Management for Nuclear on System z

– Better capability and flexibility for integrated operations and maintenance

Maximo Nuclear adds to the robust capabilities of base Maximo to support the specialized processes of nuclear power companies and other organizations operating within stringent regulatory requirements. It supports the operating plant, also suitable for construction, startup, and new plant transition activities. In addition, fossil power generation companies will use selected Maximo Nuclear features to maintain their generation assets more profitably.



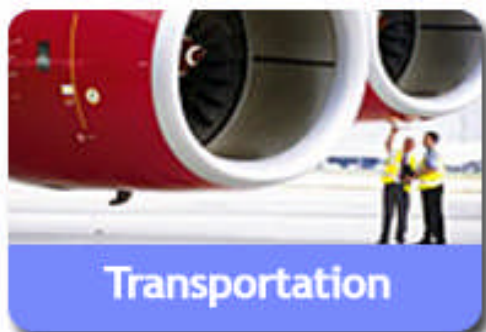
### Capabilities

- Developed based the Standard Nuclear Performance Model
- Supports Surveillance Testing
- Provides both a Lineups Plans and a Lineups application, . .
- Commitment Tracking enhancements to control and cross validate work orders and PMs.
- PM enhancements for efficient generation and grouping of clearances with the associated work orders

## IBM Maximo Asset Management for Transportation on System z

### – Providing better asset configuration management capabilities

Maximo for Transportation helps address stringent regulatory requirements, with best practices to extend asset life, optimize parts management, reduce road calls, and increase planned maintenance. Supports a wide variety of transportation sectors: freight and passenger rail, public transit, fleet trucking, marine, and aircraft.



### Recent Enhancements

- The latest version has 21 new applications, 2000+ database fields and 34 reports
- Define axle configurations, set rules for items used in axle positions, and perform rotations, installation and removal transactions, and record readings
- Enhancements in Asset Management, Motor Pool Management, Warranty Management, Telematics, and Work Order Management

## For more information

- Visit [www.ibm.com/tivoli](http://www.ibm.com/tivoli) - follow the Asset and Facilities Management link
- Contact your local IBM representative
- Join the IBM Asset Management Community  
[www.ibm.com/communities/assetmanagement](http://www.ibm.com/communities/assetmanagement)

