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

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?

Manuf
| Tools | Plants | Valves | Support Equip | Robotics | Health | Safety & Survival Gear | Milling | Machinery | Assembly |

Energy
| Turbines | Reactors | Fire Suppression | Ventilation | Offshore | Boilers | Drilling | Generators | Wind Turbines | Solar |

Transport
| Trains / Rolling Stock | Ships | Trucks | Buses | Aircraft | Military | Space | Navigation | Avionics | Engines |

Facilities
| Buildings | Campus | HVAC | Lighting | Keys Mgmt | Escalators |

IT Assets
| ATM / POS | Desktop | Mobile | Servers |

Utilities
| Cabling | Power Transmission | Water Distribution | Meters & Measurement | Waste & Treatment |

Linear
| Rails | Roads | Pipelines | Bridges |

Life Sci
| Calibrated Equip | Medical Supplies | Compressed Cylinders | Pharmaceuticals | Lab Equipment |

Comm
| Microwave & Satellite | Fiber Optics | Wire | Poles |

IBM Maximo - Asset Management for a Smarter Planet

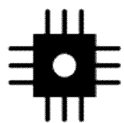| Transportation Assets | Facilities | Production Equipment | Infrastructure | Communications |

A smaller, flatter, faster and "smarter" planet

INSTRUMENTED

INTERCONNECTED

INTELLIGENT

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**
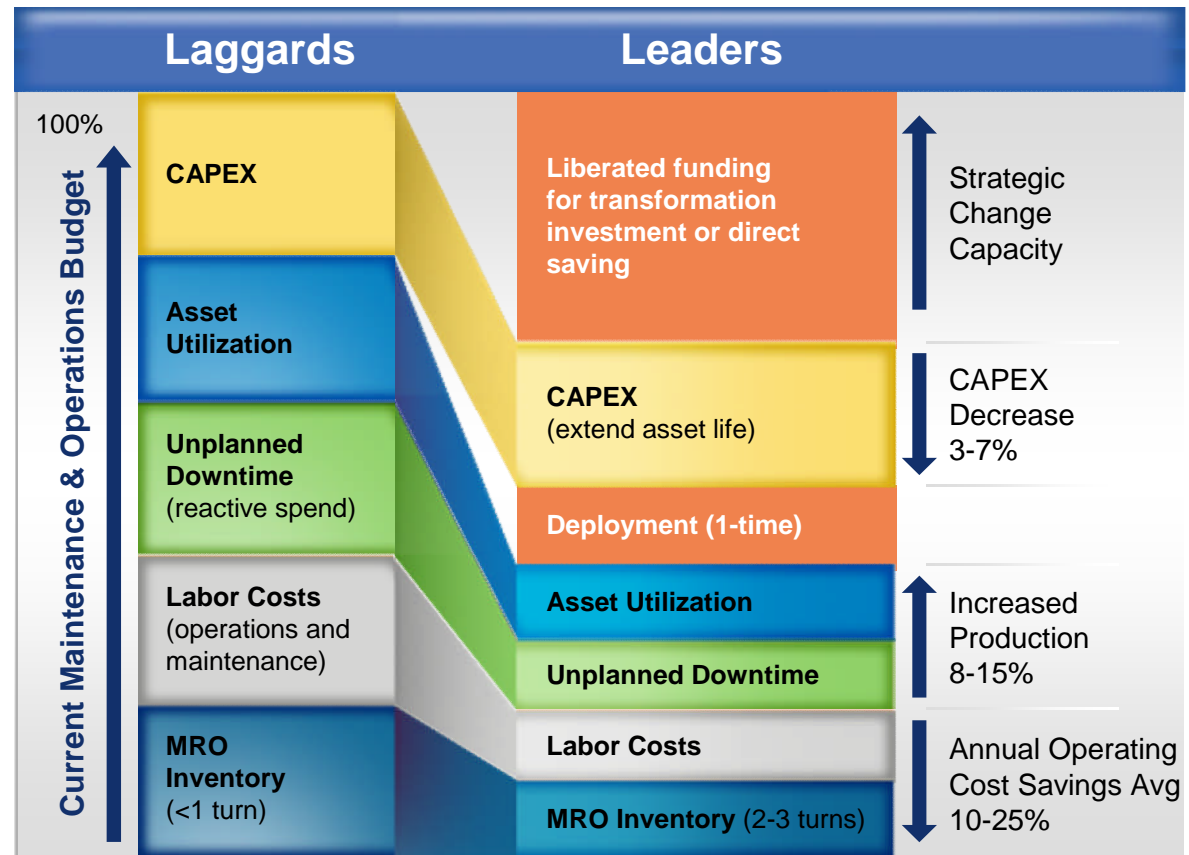- **Managing both the asset and the service to deliver customer value**

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

Laggards	Leaders	
CAPEX	**Liberated funding for transformation investment or direct saving**	Strategic Change Capacity
Asset Utilization	**CAPEX** (extend asset life)	CAPEX Decrease 3-7%
Unplanned Downtime (reactive spend)	**Deployment (1-time)**	
Labor Costs (operations and maintenance)	**Asset Utilization**	Increased Production 8-15%
	Unplanned Downtime	
MRO Inventory (<1 turn)	**Labor Costs**	Annual Operating Cost Savings Avg 10-25%
	MRO Inventory (2-3 turns)	

Current Maintenance & Operations Budget — 100%

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
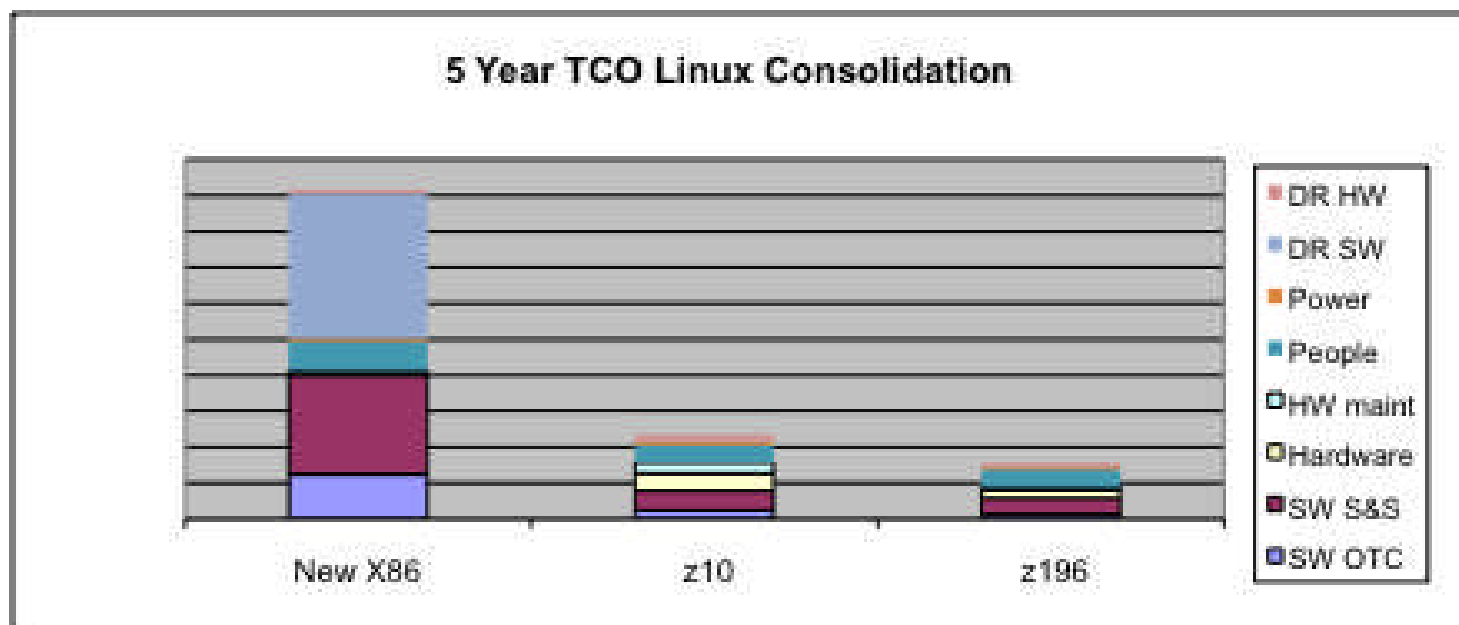

Transportation

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)

5 Year TCO Linux Consolidation

	DR HW
	DR SW
	Power
	People
	HW maint
	Hardware
	SW S&S
	SW OTC

New X86   z10   z196

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.

- Additional 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
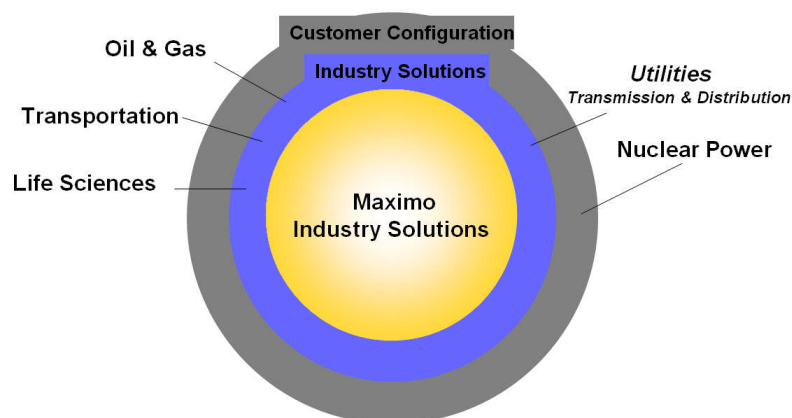- Disaster Recovery was included in the System z, where it would double x86 costs

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.

Industry Solutions Model

Oil & Gas

Transportation

Life Sciences

Customer Configuration

Industry Solutions

Maximo Industry Solutions

Utilities
Transmission & Distribution

Nuclear Power

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

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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.

Energy & Utilities

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.
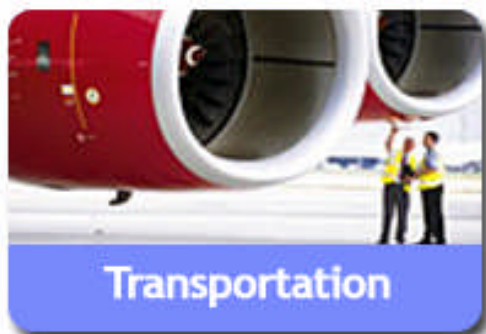

Energy & Utilities

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.
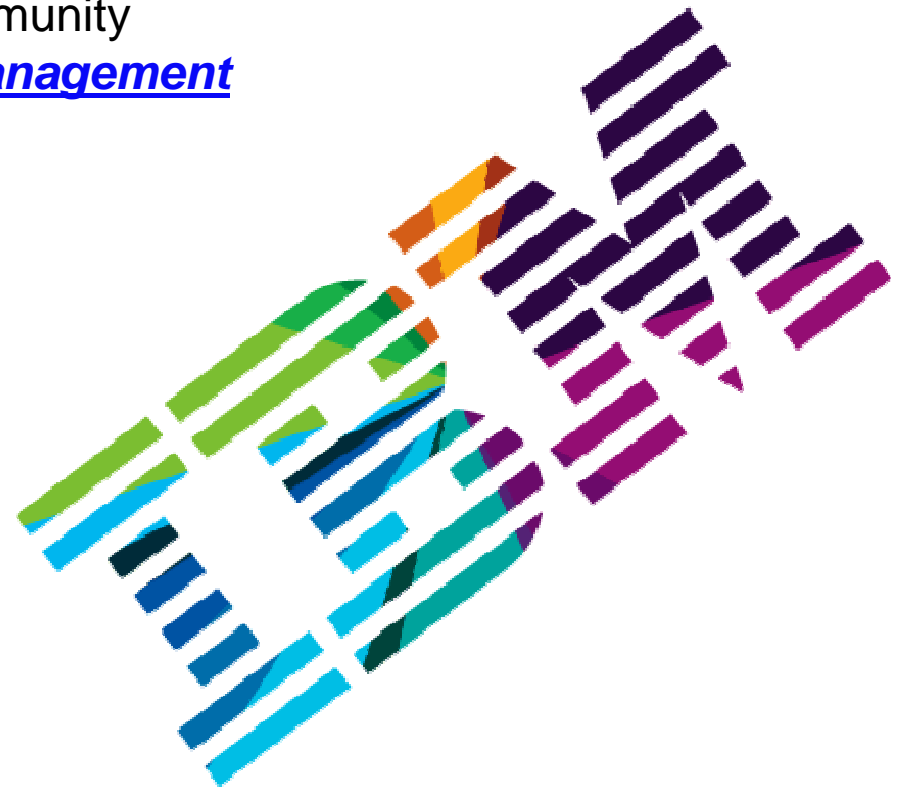
Transportation

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 - follow the Asset and Facilities Management link

- Contact your local IBM representative

- Join the IBM Asset Management Community
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