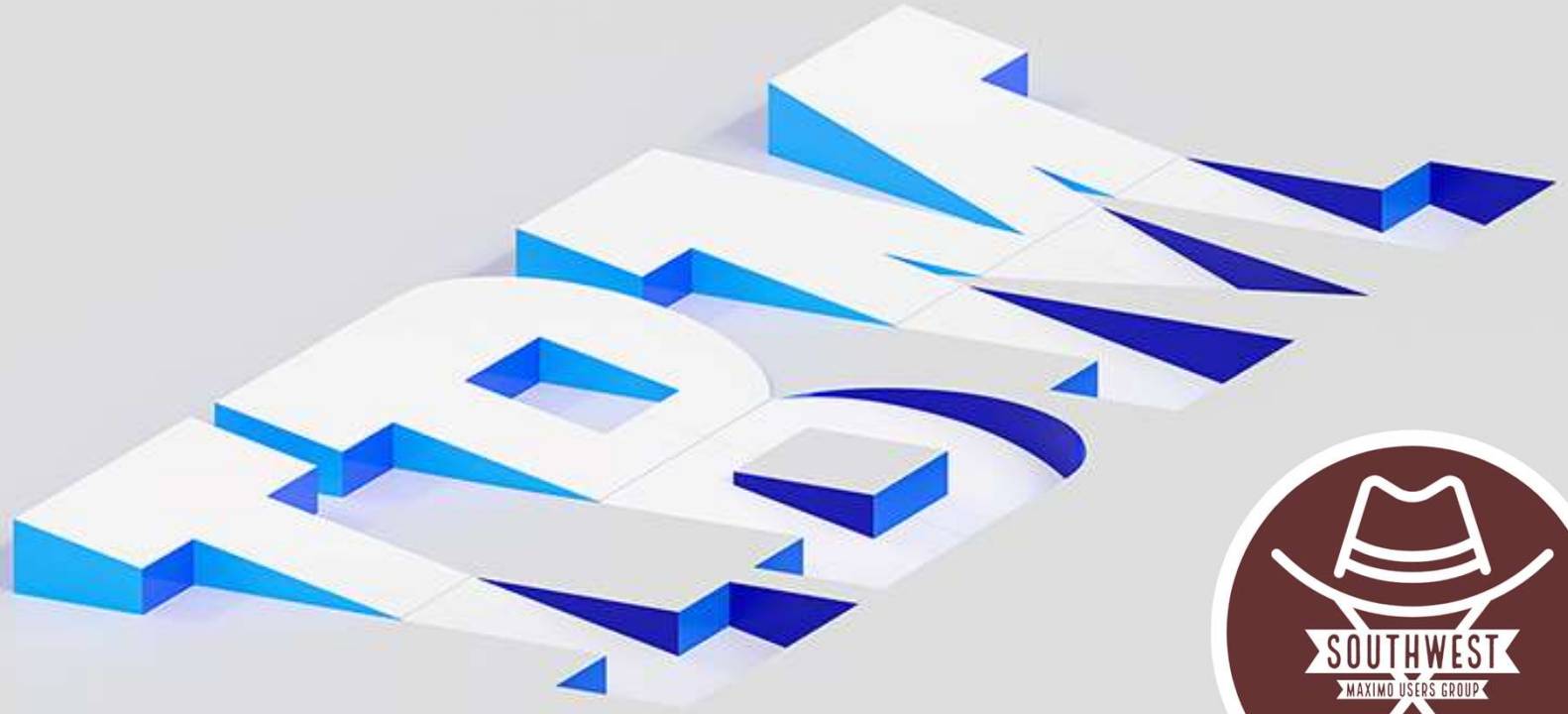
What’s new in Maximo Application Suite



SOUTHWEST
MAXIMO USERS GROUP
SWMUG

IBM

Kathy Collins
Solutions Engineer | Sustainability Software

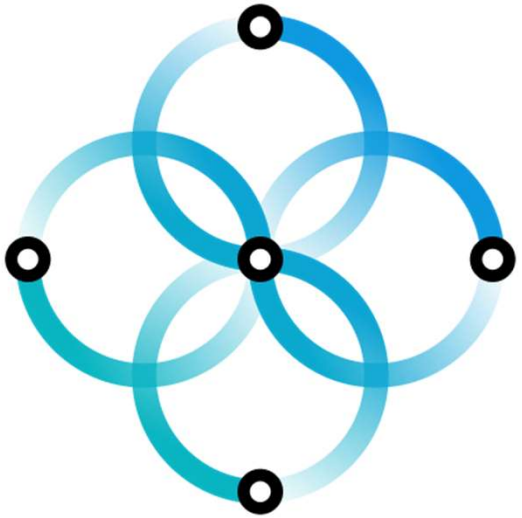
Rishab Nambiar
Solutions Engineer | Sustainability Software

Rick Hatheway
Solutions Engineer | Sustainability Software

What’s New Agenda

- Reliability Strategies
- Maximo Visual Inspection
- MAS SaaS

Introducing *Reliability Strategies* for Maximo Application Suite



Rick Hatheway, *Maximo Technical Specialist*: rick.hatheway@ibm.com

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Reliability Centered Maintenance (RCM) Is a Huge Opportunity

Optimize asset performance
to reduce downtime and increase revenues

Understand failure modes
to shift from reactive to proactive strategy-based maintenance

Identify failure consequences
to mitigate safety and compliance risks

Optimize PM's
to improve operational efficiency and extend asset life

UP TO **20%**
Maintenance cost reduction

UP TO **15%**
Improved reliability

UP TO **37%**
Labor hour reduction via elimination of ineffective tasks

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Source: Uptake.com

But RCM Implementation Is Challenging

Scaling RCM-based methods requires...

- Data about failure modes, effects and criticality
- Knowledge about systems, equipment and processes
- Unified systems and standardized data
- Resources in terms of time, money and people

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Reliability Strategies Makes It Easy

A dedicated RCM/FMEA app with included content library. Together, it becomes a game-changer.

Reliability Strategies **App**
(Manage add-on)

Reliability Strategy
Library (Accelerator)

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An Application Purpose-Built for RCM

With rapid time to value, the solution makes it fast and easy to create and optimize reliability strategies

FMEA Viewer

For reviewing equipment failure mechanisms in the Reliability Strategy Library

Reliability Strategy Composer

Rapidly builds Reliability Strategies with corresponding PMs and Job Plan tasks using the Reliability Strategy Library

Reliability Strategy Builder

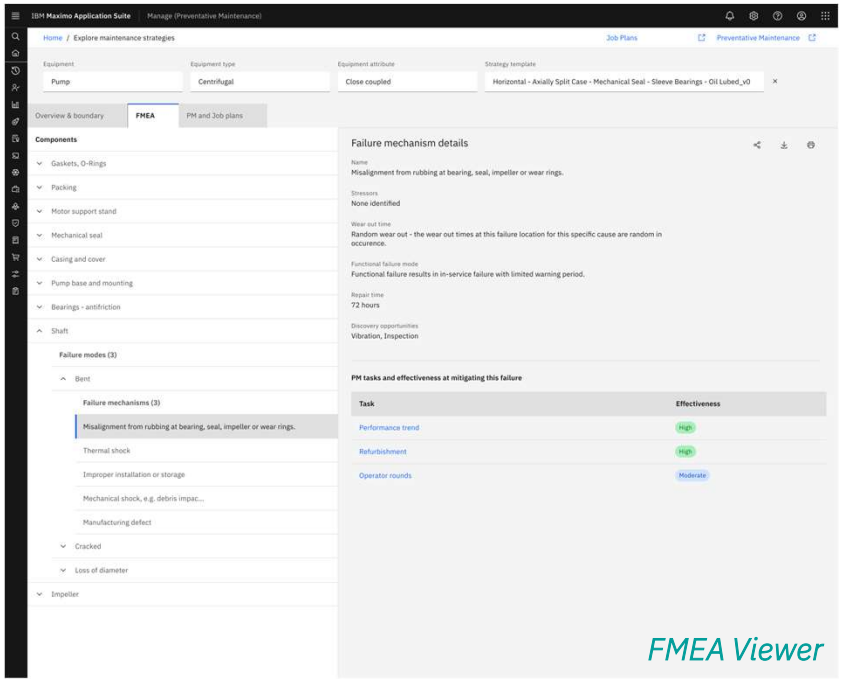
Edit or add to the Reliability Strategy Library

Reliability Strategy Optimizer

For optimizing PM's for both reliability and cost

Conditioned Based Maintenance with Advanced Analytics

Drive condition-based maintenance further into the asset base with failure mode/parameter coupled machine learning libraries



FMEA Viewer

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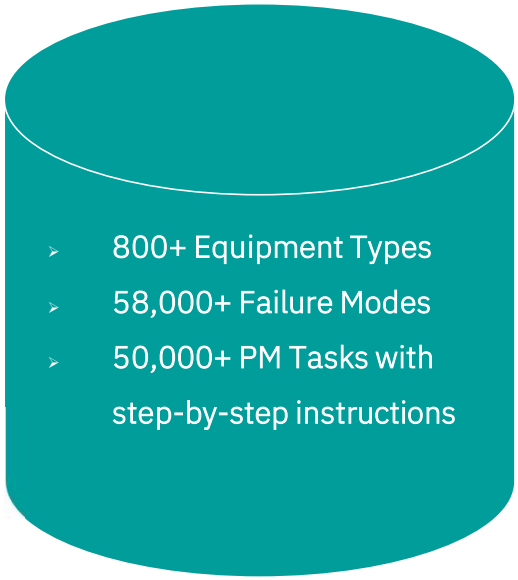
Pre-Built Strategies for 800+ Asset Types

...based on 25 years of large-scale RCM studies

Reliability Strategy Library



Features for each asset include...

- Time scales of degradation
- Explicit identification of wear-out & random processes
- Stressor influence on degradation time scales
- PM tasks one to one mapping with failure modes
- PM effectiveness at detecting specific degradation

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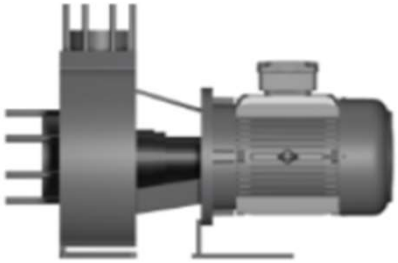
Asset Example

Example: Pump - Horizontal - Single Stage - Double Suction - Axially Split Case



17 Failure Locations

124 Degradation Mechanisms

- Random vs Wearout
- Wear Out Times
- Stressor / PM Task Impact

Operating Context

Select Stressors:

- Duty Cycle
- Environmental
- Service Conditions

Tailor based on context:

- Chemical
- Oil & gas
- Manufacturing
- Utilities / Powergen
- Mining
- Hydro
- Wastewater

Maintenance Strategies

Baseline
PMs with intervals by context
Job Plans

- Tasks
- Step-by-Step Guides

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How Employee Effectiveness Will Increase

Reliability Engineers

Analyze critical assets, apply FMEA results, create/optimize PMs with targeted tasks & frequencies and suggest condition-based monitoring

Maintenance Managers and Planners

Auto-generate work from PMs & ML-driven alerts, plan work efficiently using accurate job plan data, schedule maintenance based on optimal frequencies

Maintenance Technicians

Optimize time spent by doing the right work at the right time with complete, accurate and detailed work orders

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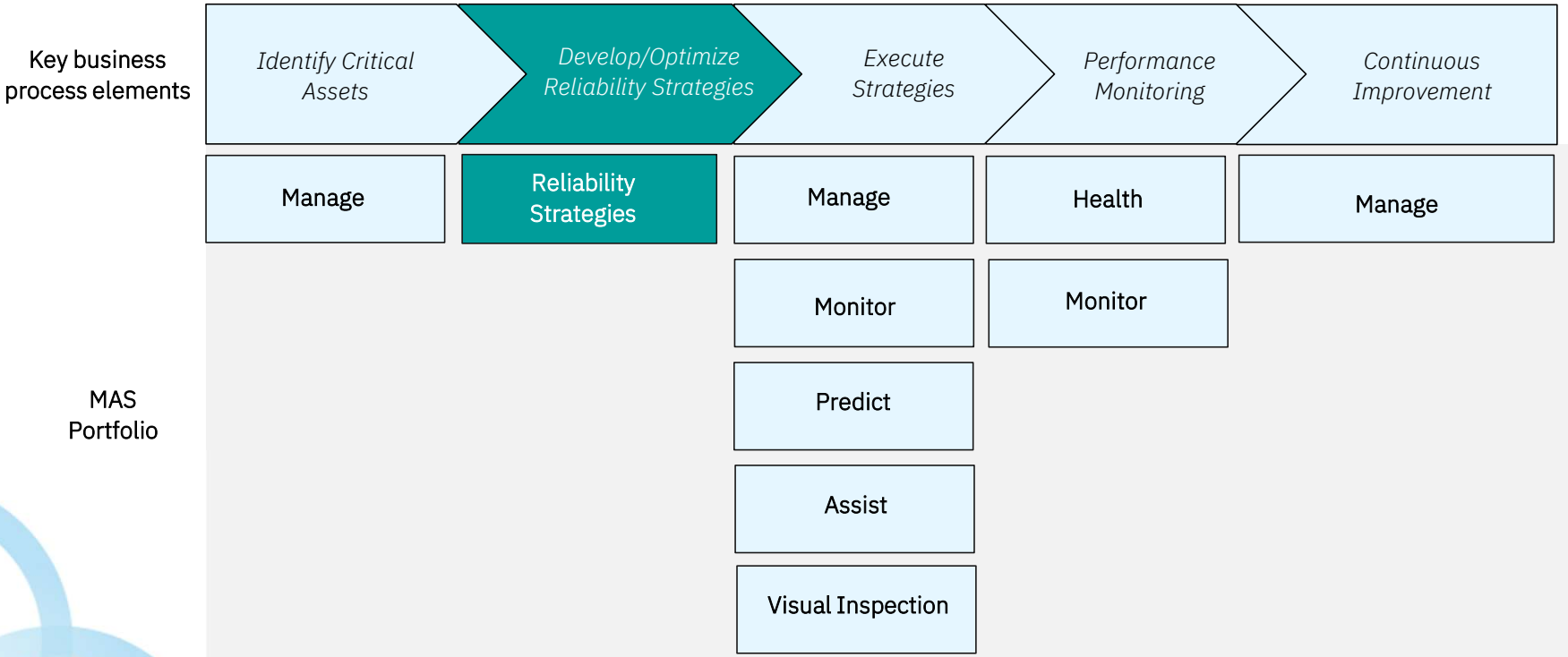
Leverage the Full Power of MAS

A single solution for RCM, EAM and APM capabilities



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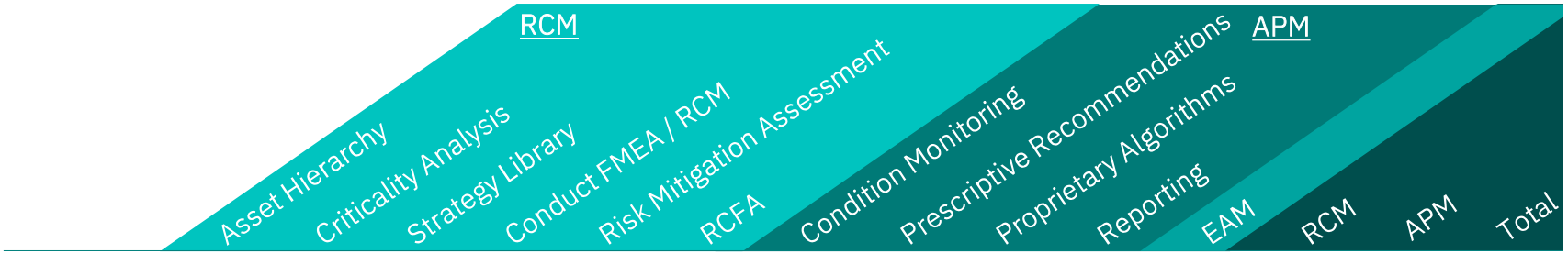
New RCM capability puts IBM in the lead



IBM	3	2	3	2	2	2	2	0	3	2	3	2,3	1,8	2,2
Aveva	2	3	2	2		2	2	2		2	0	2,1	2,0	2,1
SAP	3	2	0	2		2		0			3	1,8		1,7
Siemens		2	1	2							0	1,7		1,7
HxGN	2	2	1	2	2	0	1	0	0	2	3	1,2	0,8	1,4
GE Digital	2	3	0	0	1	2	2	0		2	0	1,3	1,3	1,3
Reliasoft	2	3	0	3	2		0	0	0		0	2,0	0	1,3
ARMS	2	2	2	0	0	2	0	0	0	2	0	1,3	0,5	1,0
Bentley	2	2	1	2	0	0	1	0	0	2	0	1,4	0,8	1,0
Itus Digital	0	0	2	0	0	0	2	2	0	1	0	0,3	1,3	0,7

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3 Exceeds customer needs 2 Satisfies customer needs 1 Feature insufficient 0 Feature non-existent

Source: Internal 2023 benchmarking study

Announcement at Maximo World 2023

First release with 8.11 in September

First release use cases

FMEA Viewer
for reviewing equipment failure mechanisms in the Reliability Strategy Library

Reliability Strategy Composer
Rapidly builds PMs and Job Plan tasks using the Reliability Strategy Library

Future releases

Reliability Strategy Builder
Create, edit or add to the Reliability Strategy Library

Reliability Strategy Optimizer
For optimizing PM's for both reliability and cost

Conditioned Based Maintenance with Advanced Analytics
Drive condition-based maintenance further into the asset base with failure mode/parameter coupled machine learning libraries

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What’s New Agenda

- Reliability Strategies
- Maximo Visual Inspection
- MAS SaaS

Questions

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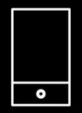
Maximo Application Suite

Best of class capabilities provide an integrated approach to optimizing assets

Manage	Monitor	Health	Predict	Visual Inspection	Schedule	Mobile	Assist	Safety
Intelligent Asset Management	Monitor and Detect Anomalies	360 View of Assets	Predictive Failures	AI-Powered Insights	Schedule Work and Resources	Technician Work Execution	Prescriptive Assistance	Actionable Insights for Worker Safety



IBM Cloud Pak for Data | IBM Watson Studio | IBM Watson ML

Red Hat OpenShift

Infrastructure Independent
Common Operating Environment

Key benefits of IBM Maximo Visual Inspection

Fast, easy, accurate

Point-and-click AI model building – in just a few hours

Process automation

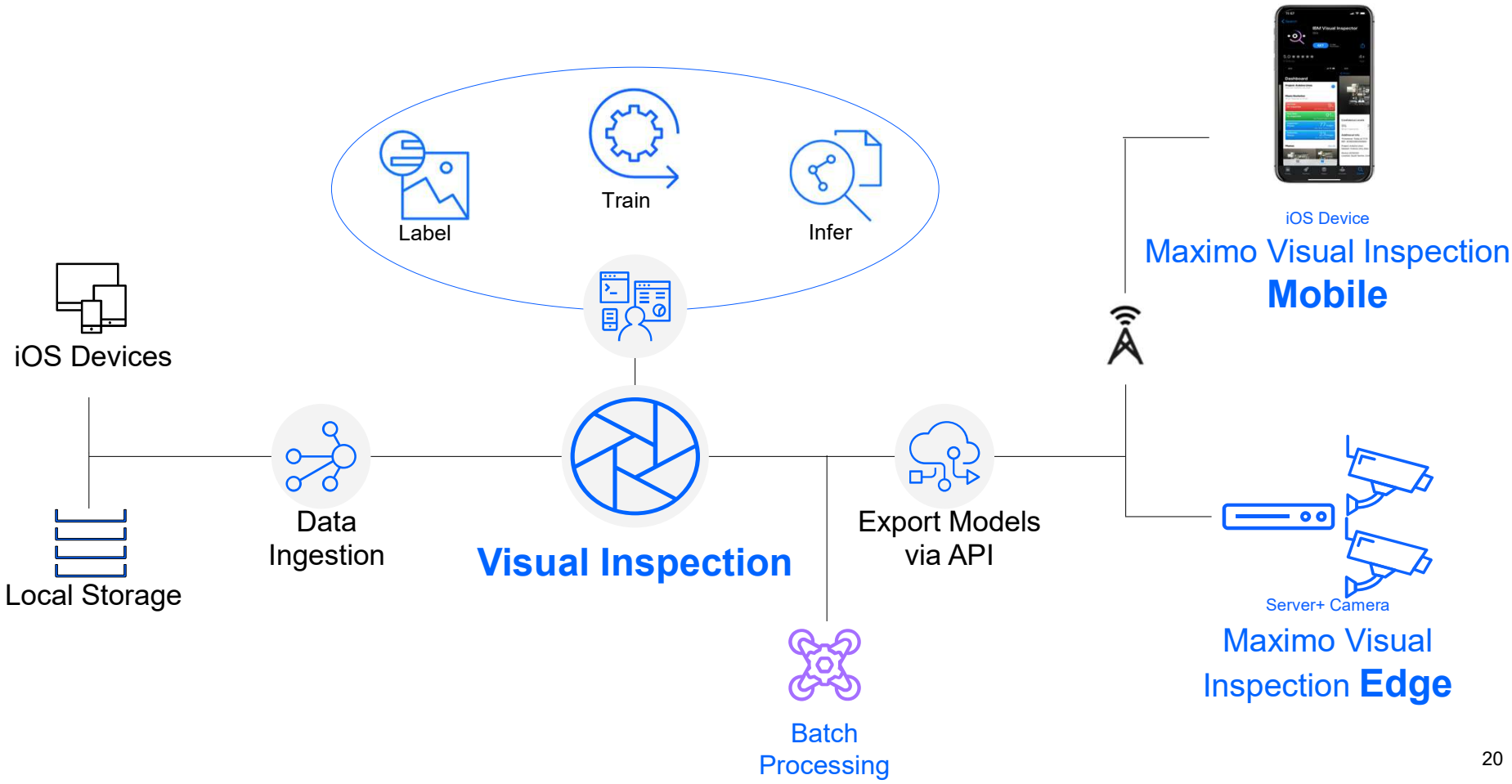
AI-powered insights at scale

Real-time quality assurance – ”error proofing”

Improve efficiency & performance of assets - Maximo integration

Maximo Visual Inspection-Workflow

Label, Train, & Deploy



IBM Maximo Visual Inspection: Common use cases

What the human eye can see, but even better (in most cases)

Popular use cases for Visual Inspection in vehicle assembly

Assembly, especially for a new vehicle launch, is ideal.

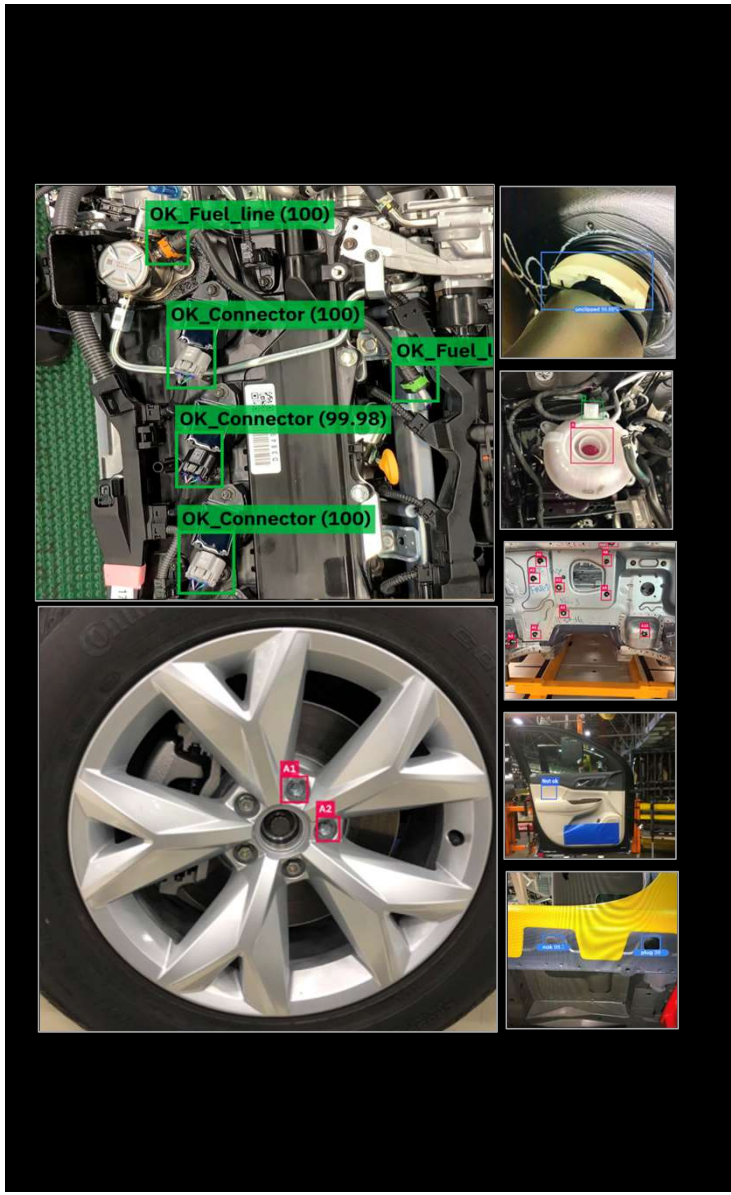
- Electrical connections (seated, soft seat, unconnected)
- Missing parts (bolts, clamps, hoses, under hood)
- Incorrect part installation (alignment, tightness, clips, color)
- Part damage (scratches, dents, wrinkles)
- Labels (wrong label, damage)

Body Shop

- Sealant application
- Stud welds
- Panel damage
- MIG Welds

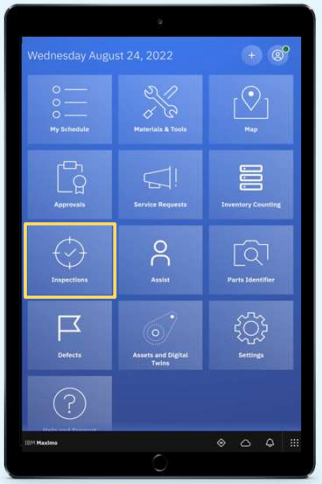
Sub Assembly

- Engine (parts, hoses, electrical)
- Seats (parts, damage, wrinkles)
- Axles (parts, alignment, damage)



Advanced Technology for Inspectors & Technicians

Procedural inspections
Step by Step Manual Process



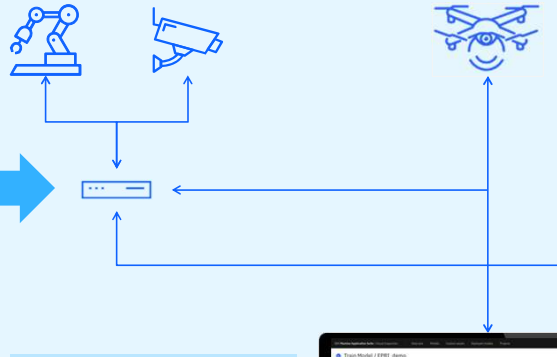
IBM Maximo Mobile

Coupled with

AI-augmented or automated inspections

Run on the MVI Edge

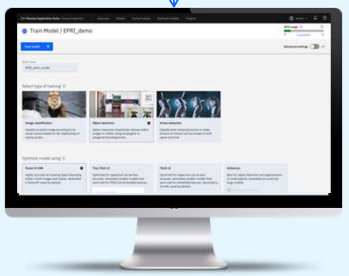
Run on iOS mobile devices



5G, 4G, LTE private and public network multi-access edge computing (MEC)

Scheduled due to event or asset condition

- Weather
- Natural disaster
- Vandalism
- Asset age
- Asset monitoring
- Asset anomaly

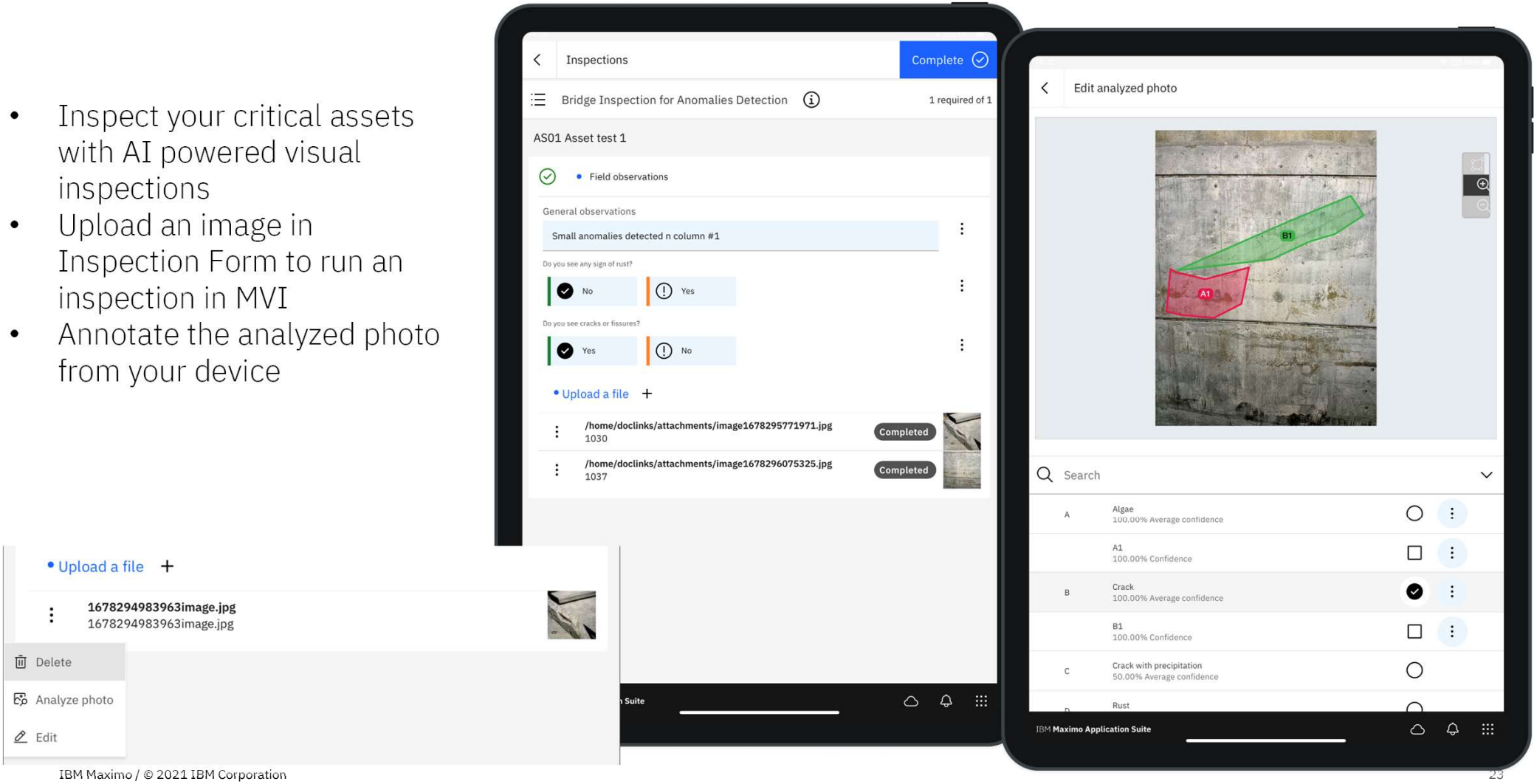


Train models and run remote inferencing.

IBM Think 2023 | © 2023 IBM Corporation

Maximo Mobile Inspections with MVI

- Inspect your critical assets with AI powered visual inspections
- Upload an image in Inspection Form to run an inspection in MVI
- Annotate the analyzed photo from your device



Maximo Visual Inspection Deployment options

Maximo Mobile – is the mobile version of Maximo Manage (EAM)

Maximo Visual Inspection is an App on iOS AppStore to run automated visual inspections using MVI models

MVI Edge scales MVI inspections and is flexible with type of cameras

Maximo Mobile

Manage your maintenance needs from Maximo Manage and Maximo Mobile with the help of AI using Maximo Visual Inspection. (MAS 8.10)

Ideal for **Asset Inspection** use cases (road, rail, transmission lines, solar panel, electrical panel...)

Industries: Maximo for Civil Infrastructure, Energy & Utilities, Oil & Gas, Water

Desktop or mobile (Android or iOS), used as a mobile device

MVI Mobile

iOS mobile app makes developing models and conducting inspections
easy and quick to see time to value.

Ideal for automated **quality inspection** use cases

Industry: Manufacturing

iOS devices only, used as fixed camera or portable/mobile.

Easy to switch between inspections with auto-capture.

MVI Edge

MVI Edge makes developing models and conducting automated inspections easy and scalable

Ideal for **scaling automated quality inspection and asset inspection** use cases

Industries: Manufacturing, Maximo for Civil Infrastructure (bridge, road, rail, campus), Energy & Utilities, Oil & Gas, Water

Any **camera with RTSP or GigE** protocol, including IP cameras, infrared/thermal camera, high-resolution cameras, drones, cameras on robots, or specialized cameras, or **image/video folder**.

Run multiple inspections at a time on MVI Edge

Sustainability Software

Maximo Visual Inspection

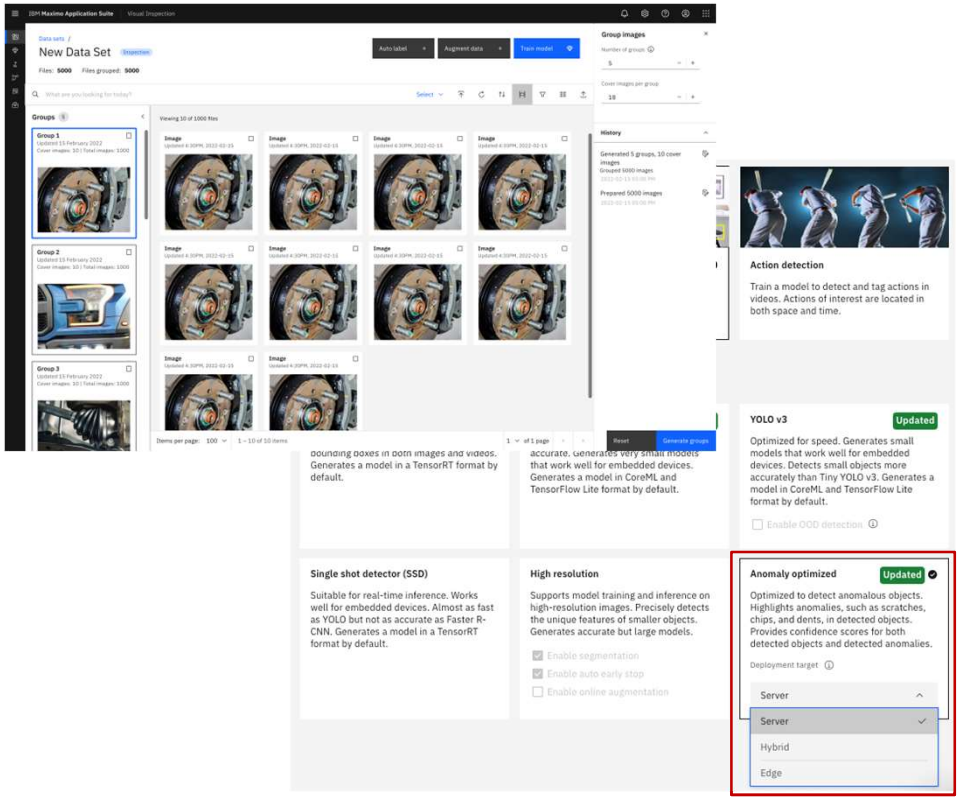
Dataset pattern insights is a new capability that automatically groups images in a dataset according to common visual patterns detected in the images using AI.

Object storage support: extends the storage of inspection images to millions of images.

- Current storage in PVC, users can enable Object Storage

Anomaly detection improvements: enables the selection of an optimized model based on the available inferencing hardware: servers, edge devices, or hybrid systems.

Seamless upgrades in MVI Edge: enables the platform to be smoothly and transparently upgraded from one release to a more recent version.



What’s New Agenda

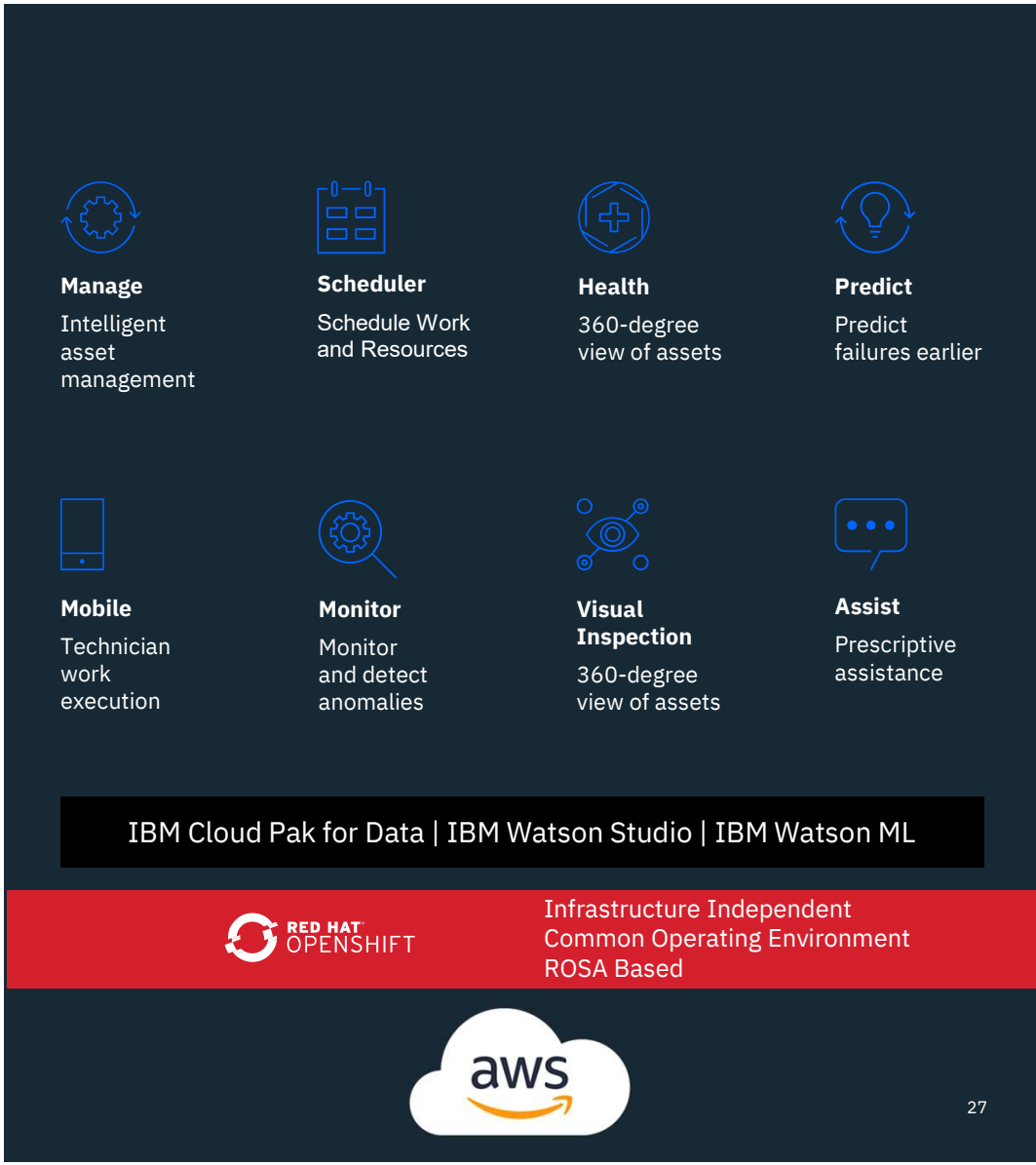
- Reliability Strategies
- Maximo Visual Inspection
- MAS SaaS

MAS SaaS on AWS

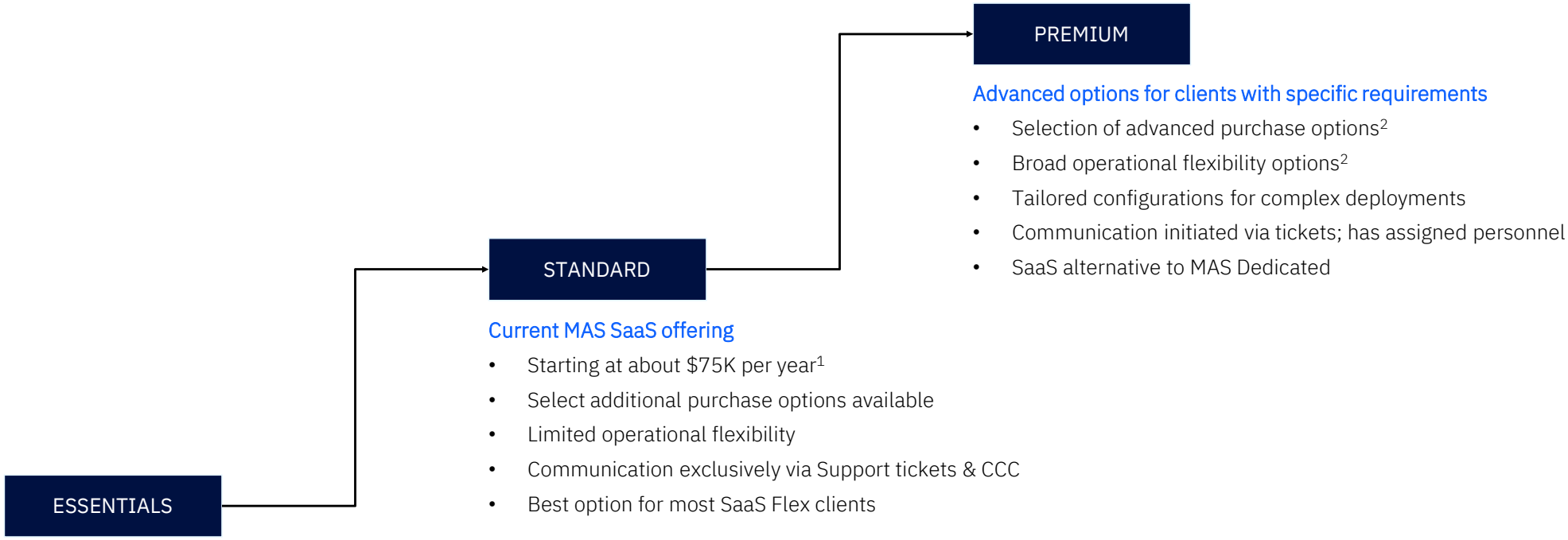
IBM MAS SaaS is based on AWS Cloud, providing end-to-end infrastructure management services with Red Hat OpenShift.

Together with seamless support by IBM SRE operation experts, MAS SaaS provides clients:

- Hybrid deployment options
- All MAS applications in one suite
- Simplified licensing and pricing with single charge metric
- Alignment with AWS' one million+ global customers



New MAS SaaS Editions



[1] Subject to change
[2] Availability of options will vary. Not all will be available at initial release.

New MAS SaaS Tiers

Essentials

Entry level offering for new SaaS clients

- Low touch – communication via tickets only
- Fixed configurations at a fixed price
- Minimum operational flexibility
- Suitable for small on-premises EAM clients

Maximo Maintenance Essentials
Manage + Mobile + Health

- 1 environment
- Up to 25 users
- Up to 100 work orders / hour
- Up to 1,000 health scores / hour
- Scheduler included

Add'l purchase options
- Max of 1 add'l environment
- Up to 25 add'l users
- Read-only production DB replica

OR

Maximo Inspection Essentials
Visual Inspection

- 1 GPU
- Up to 2 deployed models
- Up to 5 edge devices
- Up to 10K inferences / hour
- Up to 100 GB storage

Add'l purchase options
- None

Standard

Current MAS SaaS offering

- Low touch – communications via tickets only
- Select additional purchase options available
- Limited operational flexibility
- Best option for most SaaS Flex clients

Full MAS Suite with Standard Operational Practices (Today's MAS SaaS Offering)

- Select from any MAS application or combination of applications
- Purchase multiple non-production environments; R/W access to non-prod environments is included
- Purchase any capacity of functionality (e.g., Users, Scores/Inferences, I/O Points, etc.)
- Select from preferred AWS data centers (US-East, Montreal, Frankfurt or Sydney)
- All Manage Industry Solutions & Add-ons are available; some may require additional AppPoints

Add'l purchase options[2]
- Non-production environments
- Read-only production DB replica
- Scheduler Optimizer
- Allow Listing

Premium

Advanced options for clients with specific requirements

- Higher touch – communication starts with tickets
- Wide selection of advanced purchase options[1]
- Broad operational flexibility options[2]
- Tailored configurations for complex deployments

Full MAS Suite with Custom Operational Options[2] (Alternative for Most MAS Dedicated Clients)

- Flexible scheduling of updates & upgrades (within limits & excluding certain security items)
- Support for multiple VPNs
- Deployment validations for regulated industries
- Assigned personnel

Add'l purchase options[2]
- Extended update/upgrade schedules
- Extended data retention periods
- Multi-site / Multi-zone support
- Enhanced Disaster Recovery
- Direct (Private) Connect
- Multi-Workspaces
- Oracle or SQL Server database
- Choice of any AWS data center that offers necessary services

[1] Availability of options will vary. Not all will be available at initial release.

Questions?

Demo

Maximo Application Suite Mobile

Empowering the technician with intelligent mobile EAM to manage any asset, anytime, any place

Shalabh Prasad
Lead Product Manager
Maximo Mobile
shalabh@us.ibm.com

Maximo Mobile

Next generation user experience

1 application,
1 role-based interface

Intelligent workflows = blue button

Intelligent forms = configurability

Connected and disconnected

Trustworthiness: data quality is higher, and real-time updates

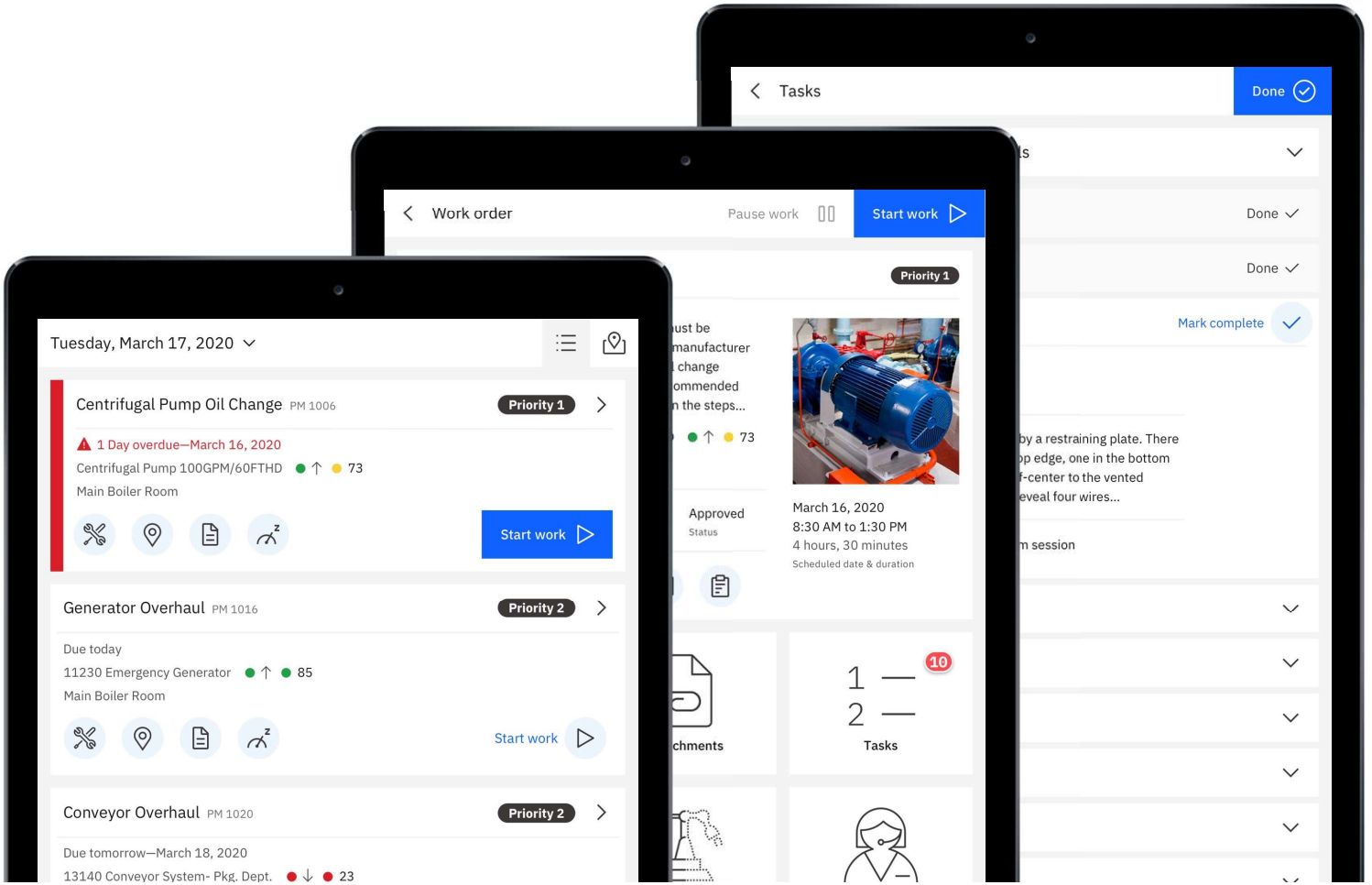
Downloadable from:

- Apple App Store
- Google Play Store

Simplicity

Just click on the
blue button
“guided” flow

New use cases
part of journey



Touchpoints

Assist	Materials and tools	Inspection	Expand
Safety	Map	Digital twin	Information
Scan	Photos and identify parts	Report work	Layers (map)
Meter readings	Tasks	Work log notes	Attachments