IBM Maximo for Aviation
Solution Overview
December, 2015
Topics

- Our view of the industry
- IBM Maximo for Aviation Industry Solution
- Summary
Aviation – a complex environment with multiple interconnected organizations

Multiple A/C types

Multiple Owners

Multiple Part Types

Multiple A/C Operators

Multiple Locations

Multiple Authorities & Regulators

“An aircraft is a flying object that has to be perfectly identified, monitored and maintained.”  
Airbus, InterConnect 2015
Market pressures

- **Small operating margins**
  - maximize asset utilization
  - optimize use of resources
  - reduce cost of maintenance operations
  - optimize inventory and component purchasing
  - effective management of services contracts
  - reduce IT support costs

- **Airworthiness**
  - validation of aircraft software and hardware configuration
  - complying with country regulatory requirements
  - managing Service Bulletins & Airworthiness Directives

- **Ensure maximum value at time of asset resale**
  - maintain accurate maintenance and configuration history
Agenda

- Our view of the industry
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IBM Maximo for Aviation

Maintenance, Repair and Overhaul (MRO) Service Providers

Airlines / Operators

For commercial, defense & government clients who manage fixed, rotary wing aircraft, and large unmanned aerial vehicles
The Maximo for Aviation

- An Industry Solution built on the proven capability of multiple Maximo technologies
- New industry specific capabilities added
- New user interfaces created for different user roles using the language of the industry

“Maximo solutions are well proven in the industry, as they have had the leading overall market share in their class for the past eight years,” Ralph Rio, Research Director, ARC Advisory Group.

Gartner has recognized IBM as a leader in every Enterprise Asset Management Magic Quadrant since July 1996 – most recently in the energy and utility industry.
Maximo for Aviation
created with industry leading development partners

- Maximo for Aviation has been developed with input from a number of design partners over many years in key areas
  - configuration management
  - scheduling
- Airbus is a major development partner helping to define
  - unique requirements of the industry
  - reviewing designs
  - testing of sprint releases
- Airbus is currently working on the internal deployment of Maximo for Aviation to manage their fleet of aircraft
- We will jointly sell with Airbus
Providing capabilities for the entire MRO organization

- VP Maintenance & Engineering
  - Technical Services Manager
    - Engineering Manager
    - Technical Planning Manager
    - Technical Library Manager
    - Reliability Analyst
  - Material Manager
    - Store Manager
    - Warranty Manager
    - Material Planner
  - Maintenance Manager
    - Workshop Manager
    - Line Maintenance Manager
    - Base Maintenance Manager
  - Quality Manager
    - Quality Auditor
    - Quality Controller
  - Safety Manager
  - Finance Manager
  - IT Development & Support
  - Line Maintenance Manager
  - Base Maintenance Manager
  - Training Manager

IBM Internet of Things
Engineering

- **Creation and management of Operator Maintenance Plans (OMP)** from the manufacturer Maintenance Planning Document (MPD)
  - Validation of the software and hardware configuration of the aircraft at any time
  - Management of the history of the aircraft configuration for the life of the aircraft
  - Management of the history of the maintenance plans for the life of the aircraft
  - Create and implement **sampling maintenance** programs
  - Management of **structural damage** inspection and repair
  - Support of regulatory compliance efforts, including improved readiness for both external and internal audits and reviews of maintenance policies, configuration change histories and maintenance records.
Maximo for Aviation configuration management

- Maximo for Aviation uses a rules engine called the Build Data Interpreter (BDI) to validate that the actuator, hardware and software being installed are a valid configuration
  - rules can be based on valid serial number ranges
- Maximo for Aviation maintains the history of the aircraft configuration for the life of the aircraft

Control hardware

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Material Management

- **Manage inventory**
  - across a number of storerooms for better visibility and shared part usage resulting in lower stock levels
  - across shared pooled inventory
  - including purchasing, receipts, inspections and vendor payments

- **“Lights out purchasing”** of interval-based, meter-based or event driven automated procure to pay processes.

- **Warrantee management** including managing warranties, providing, full claim processing for monetary compensation or no-charge part, and advanced notification of pending warranty expiration

- **Contract management and billing**, including managing pooled resources, detailed and accurate billing with a review and approval, and SLA penalty fee billing

- **Maximo Inventory Insights**, a SaaS offering that optimizes inventory levels to minimize cost and maximize availability of parts
Managing pools of assets with Maximo for Aviation

Maximo for Aviation can manage pool agreements for each customer with flexible pricing rules that define entitlement of services including:

- Scope of Work
- Price Schedules
- Billing Schedules
Planning

- **Complete** aircraft hierarchical graphic view of planned and forecasted work
- **Costing of Activities** including nested job plans
- **Graphically view and assign work** load for hangar and all aircraft in each bay, matching to available resources
- **Graphically plan** the aircraft maintenance work to ensure that the hangar and bays are used to full capacity with the correct capabilities.
- **Review** daily readiness of labor and tools of a hangar
Maintenance

- **Manage** labor, skills, qualifications, training to reduce risk

  - **Flexibility** to support planned and unplanned maintenance activities

- **Integrated** visibility to required Service Bulletins and proactive component replacement

- **Advanced Scheduling** capabilities for service bays

- **Graphical Assignment** of labor to work for aircraft in the service bays

- **Multiple mobility options**
  - native work management app for connected or disconnected usage
  - use of browser base applications on tablets
IBM Maximo Anywhere
Work Execution for Complex Assets

A new Maximo Anywhere application that is included with Maximo for Aviation

- For maintenance technicians and support staff
- Mobile workers can
  - work connected or discovered from the network
  - review task details, report labor actuals, tool or material usage, and maintain the work log
  - install, remove, or replace assets in a complex asset hierarchy
  - use bar code scanning or voice to enter data
  - view a map of their work orders and get directions to selected items with the optional maps feature
IBM Maximo Anywhere
Electronic Flight Log Book (eFLB)

A new Maximo Anywhere application that is included with Maximo for Aviation

- For aircraft flight crews
- Flight crews can
  - Review the aircraft status prior to a flight
  - work connected or disconnected from the network
  - enter flight data details after flight
  - enter discrepancies relating to the flight
  - changes the status of the aircraft

- Can be licensed for use per aircraft or by authorized user
Maximo for Aviation MRO
Analytics

- Validation of the software and hardware configuration based on rules for each aircraft ensuring the correct configuration for each aircraft before it is released to operations

- Analytics to drive scheduling to reduce the time on the ground for scheduled maintenance activities

- Analytics to ensuring that the required skills and components are available at the aircraft maintenance location

- Reporting of KPIs with predefined reports or ad-hoc reporting
Maximo for Aviation MRO
Integration and Data Management

- **Maximo Integration Framework** (MIF) is an integral capability that allows the synchronization and integration of data and applications between Maximo and external systems in real time or batch mode.

  - **Maximo ERP Adaptors** to seamlessly work with ERP systems from SAP and Oracle to streamline purchasing and financial reporting across the enterprise.

  - **Maximo data archiving** to and retain data in context with related metadata, and to allow faster response to audit and discovery requests.
Part of a family of Maximo solutions for this market

- **Maximo Asset Management**
  for maintaining tooling and facilities

- **Maximo For Aviation**
  for maintaining aircraft

- **Maximo for Transportation**
  for maintaining ground support equipment, fleets and people movers
Why IBM Maximo for Aviation?

Tailored for the Aviation industry
- Built on Maximo capability proven in other safety critical industries
- An aviation specific solution developed with industry leading development partners including Airbus
- A user interface using the language and terminology of the aviation industry

Asset Lifecycle Management
- Supports the entire aircraft cycle from initial delivery to decommissioning
- Manages the configuration of software and hardware for the lifetime of the aircraft
- Manages the maintenance plans for the lifecycle of the aircraft
- An open platform and integration framework to allow quick integration with other systems such as ERP systems

Implementation and support
- World Wide implementation and support available from IBM
- Implementation and support also available for IBM business partners
Implementation Partner Contact

Keith Merrill
Maximo Aviation Consultant
Distributed Information Technologies, Inc.
kbmerrill@dtec.com
703-524-3309 x2796