Upgrading EAM to **MAS Manage**

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Maximo Application Suite

Accelerate your transformation journey while lowering total cost of ownership

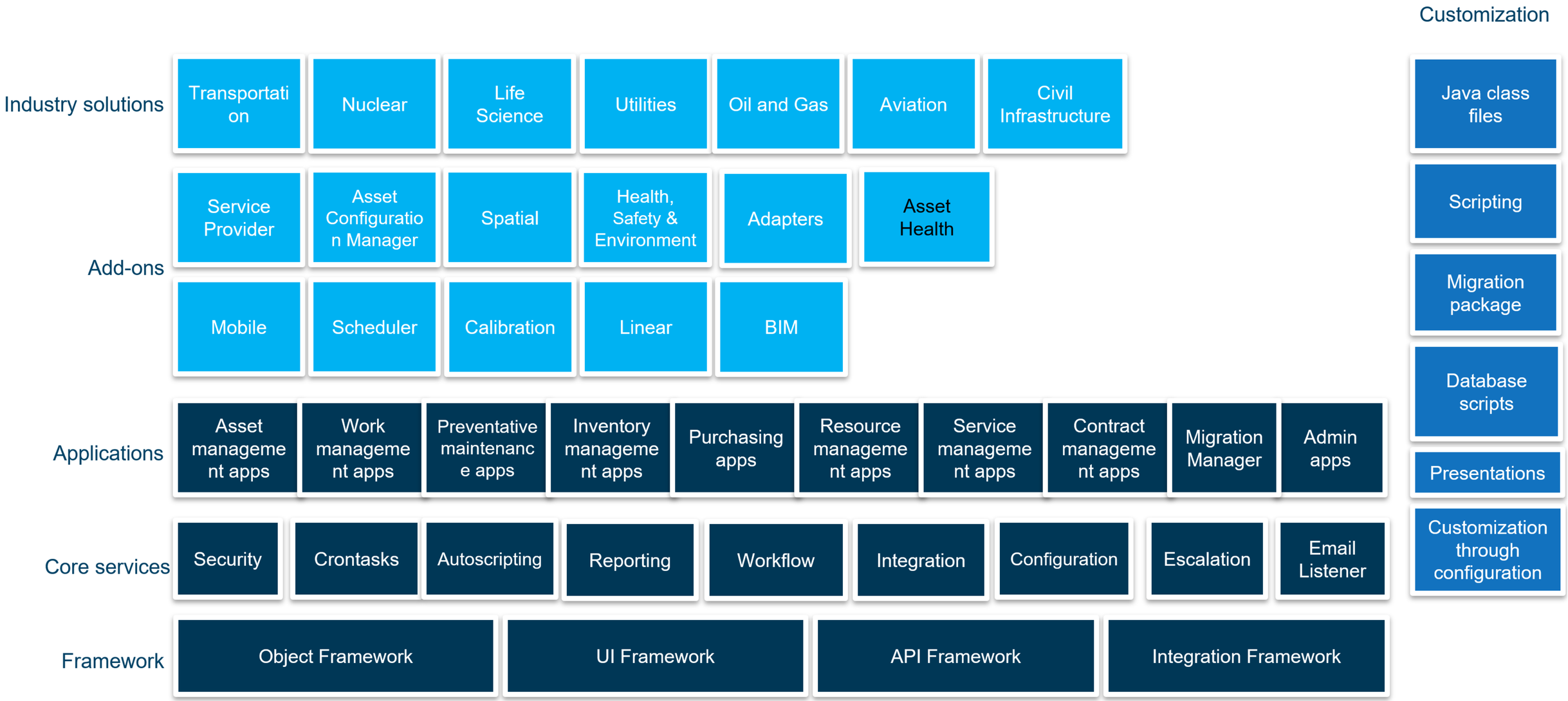
Improved usability with a unified look and feel

Single entitlement across the suite

Ease of implementation with OpenShift containers

Provides industry-leading capabilities and functionalities

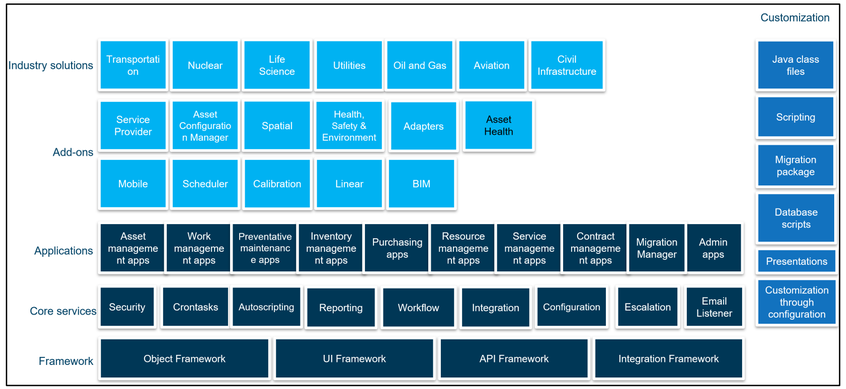
Maximo EAM 7.6.1.x



Maximo Application Suite 8.x

MAS Core

Health



Monitor

Predict

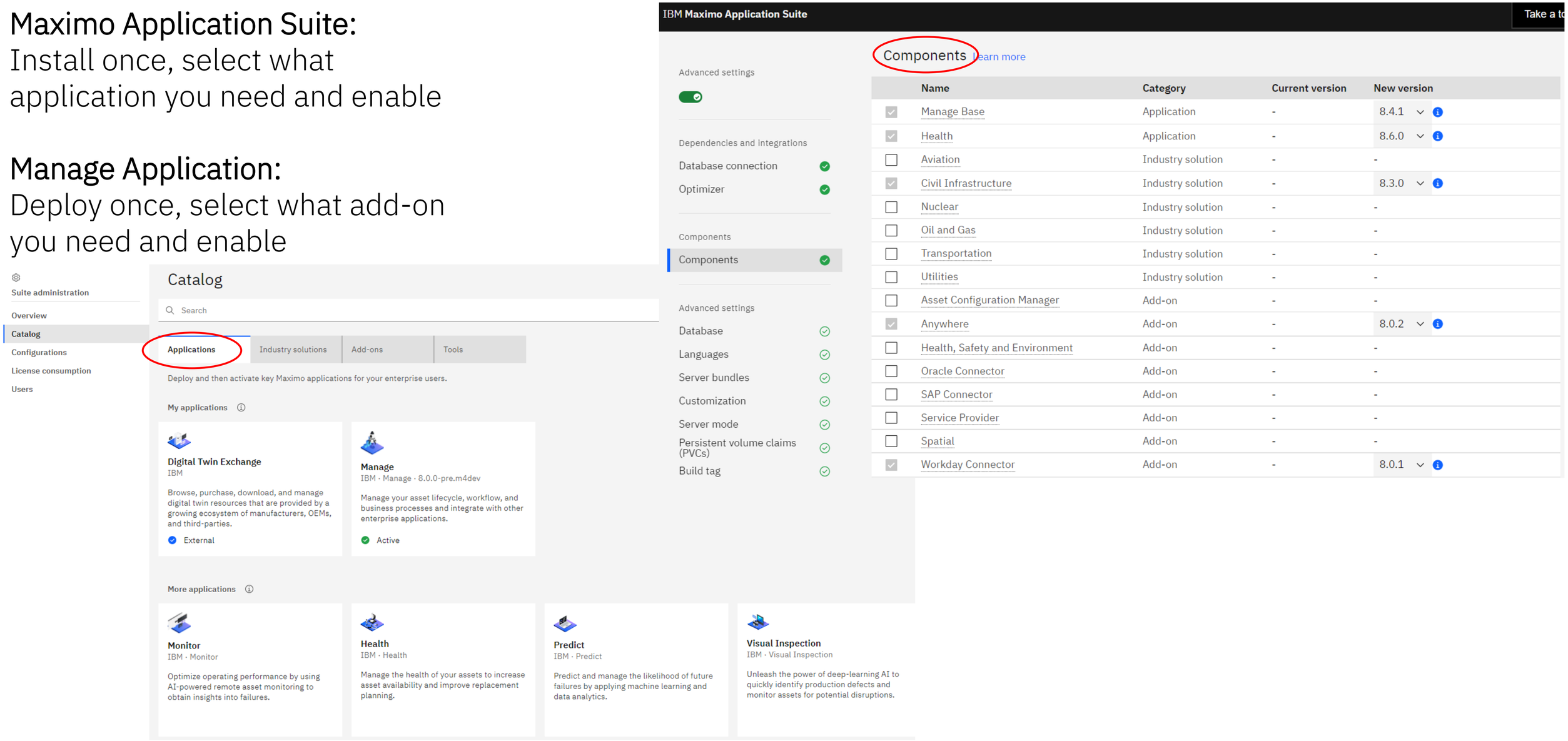
Manage

Visual Inspection

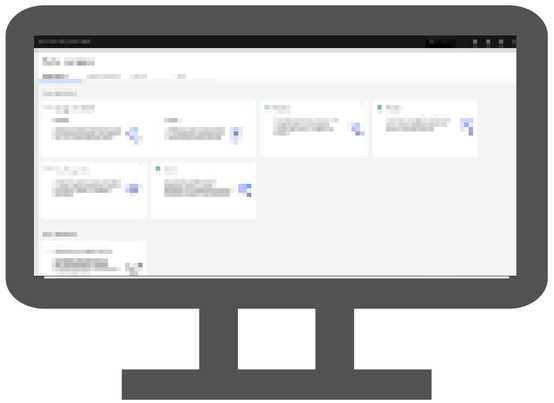
Applications in One Suite

Maximo Application Suite:
Install once, select what application you need and enable

Manage Application:
Deploy once, select what add-on you need and enable



Impact of upgrading from EAM to MAS Manage



For administrators

- Same supported databases
- **Different middleware**
- **Different installation and upgrade process**
- **Different operational processes**
- **Different user management process**
- **Different system configuration process**
- **Different licensing model**

For end users

- Same user experience
- Same applications
- Same functionality
- Same performance
- **Different login process**

For developers

- Same supported configurations
- Same customization structure
- **Different development and testing process**

Change No change

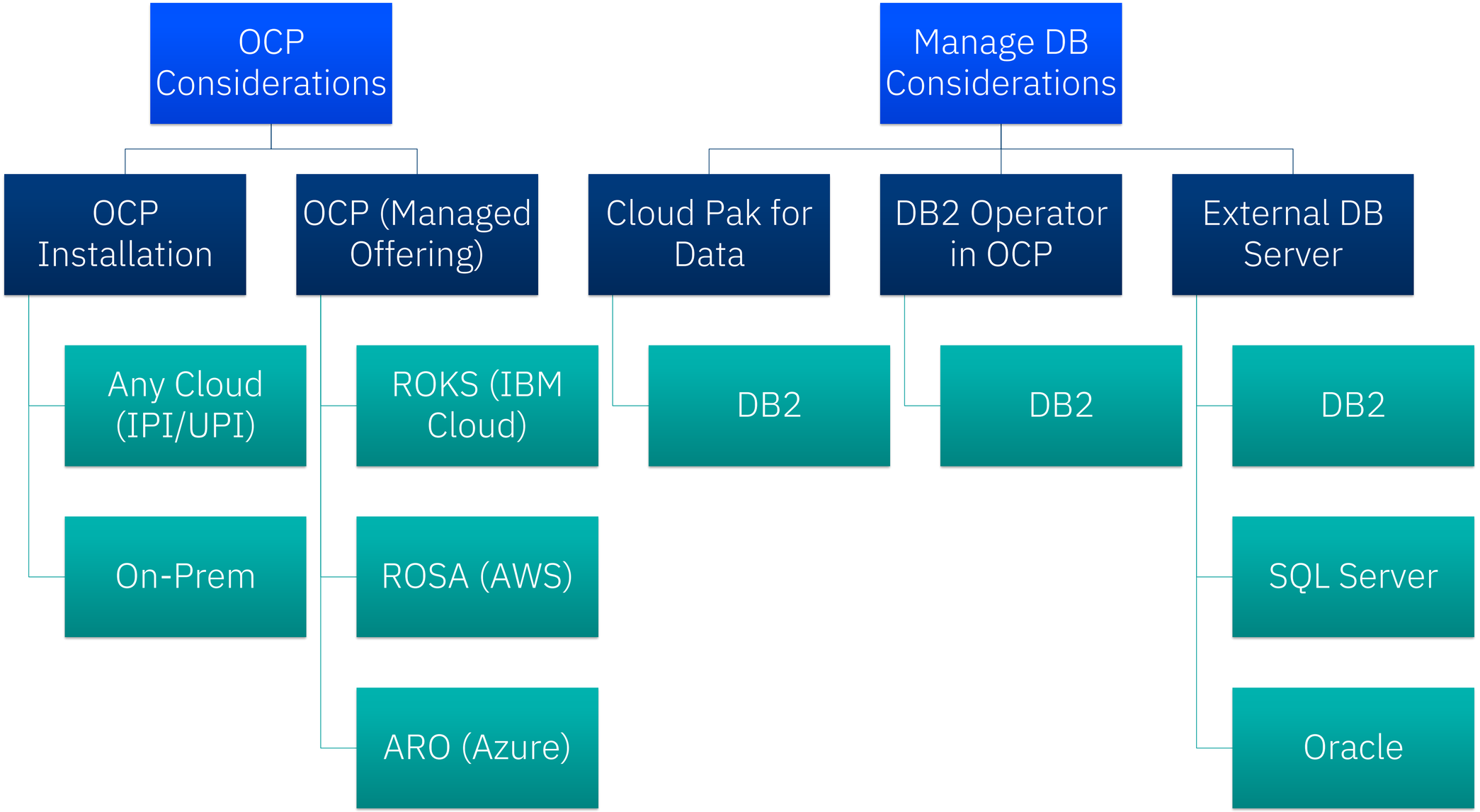
EAM to MAS Manage Migration Overview

- It is a 2-step process
  - Upgrade current Maximo version to 7.6.1.2/7.6.1.3
  - Migrate Maximo to Maximo Application Suite v8.x
- Two approaches
  - Lift and Shift (most popular)
  - Re-implement
- MAS Deployment Options
- Infrastructure Considerations
- Pre-migration steps in EAM
- DB Migration Options
- Setup MAS Environment
- Post-migration steps in MAS

MAS Deployment Options

Deployment	Availability	Procure	Provision & Operate	Client Benefits
On Premise Customer Managed	Now	Client purchases MAS from IBM Client provides infrastructure	Client provisions, manages, and operates full stack	•Maximum operational flexibility
Hyperscalers Customer Managed	Now AWS 1Q22 Azure 2Q22	BYOL Client purchases software from IBM and infrastructure from Hyperscalers	Client runs IBM-provided automation scripts to deploy MAS on Hyperscalers' cloud Client manages and operates both software and infrastructure	•Simplifies procurement and deployment •Allows client to select their Hyperscalers •Flexibility for clients to manage and operate their environment
	Now AWS 3Q22 Azure 4Q22	Paid (Marketplace listing) Client purchases software and infrastructure from Hyperscalers		
SaaS IBM Managed	Now AWS 3Q22	Client purchase single part (includes software, infrastructure, and operations) from either IBM or AWS Marketplace	IBM provisions, manages, and operates Client's MAS environment on AWS Cloud using IBM's AWS cloud account	•Reduced time-to-value •Reduced operational costs •Allows clients to focus on business priorities
Dedicated (Managed Service) IBM Managed	Now IBM 2021 AWS 1Q23	Client purchases software and managed service (including infrastructure) from IBM	IBM provisions, manages, and operates Client's MAS environment on IBM Cloud or AWS in an IBM owned account	•Simplifies deployment and operations •Provides more flexibility, than SaaS, to customize environment •Provides more operational flexibility than SaaS

Infrastructure Considerations



MAS Capacity Planning

IBM® Maximo® Application Suite Infrastructure Calculator - v8_9

*****For GUIDANCE Purpose Only*** - Enter Inputs in Yellow Cells Only**

Enforce 3 Master + 2 Worker Nodes?	Y
Installing into Existing OpenShift?	N
Install Manage w/Existing Database?	Y
Install Monitor w/Existing Database	N
Isolate DB2 Databases on Single Server?	N
Isolate Visual Inspection GPU Nodes?	N
Number of Development Environments	0
Enforce Dev DBStorage = Prod DBStorag?	N

[1]**Users:** Users are defined as ***concurrent*** users when sizing the infrastructure requirements

[2]When calculating with **i/o points**, the total is equal to the product of the following three dimensions:
1) Number of devices
2) Number of data points sent in each message
3) Number of messages sent per minute per device

[3]To calculate Predict Data Points, Use the **"Predict Data Points"** tab

[4]Existing JVMs Deployed with **Maximo EAM v7.6.1.x**
If both JVMs and Users are defined, the calculation will use the larger of the two outcomes.

Calculations			Primary		Seconday (Optional)	
		Use (Y/N)	Size Metric	Quantity	Size Metric	Quantity
Applications	Manage	Y	Current UI JVMs[4]	10	Users[1]	-
	Health	N			Users[1]	-
	Monitor	N	i/o points[2]	-	Users[1]	-
	Predict	N	Data Points[3]	65,700		
	H & P - Utilities	N	Asset Classes	-		
	Visual Inspection	N	Users[1]	10		
	Assist	N	Users[1]	-		
	Optimizer	N	Users[1]	-		

Scroll for Rusults ------->

Manage Specific JVM Requirements		
MIF	Reporting	Crontask
2	1	2

Production Cluster TOTALS	vCPU	Memory (GiB)	File Storage (GiB)	DB2 Storage (GiB)	GPU
	31	153.5	290	-	-
OpenShift Master Node Requirements	12	48	360	-	-

Application Sizing	vCPU	Memory (GiB)	File Storage (GiB)	GPUs
Manage - Calculated	15.5	91	-	
Health - Not Selected	-	-	-	
Monitor - Not Selected	-	-	-	
Predict - Not Selected	-	-	-	
H & P - Utilities - Not Selected	-	-	-	
Visual Inspection - Not Selected	-	-	-	-
Assist - Not Selected	-	-	-	
Optimizer - Not Selected	-	-	-	
Total Application Quantities:	**15.5**	**91**	-	-

Additional Application Sizing	vCPU	Memory (GiB)	File Storage (GiB)	DB2 Storage (GiB)
Manage/Health DB2 - Medium	-	-	-	-
Monitor DB2 - Not Selected	-	-	-	-
Manage - (MIF, Rprt, Crontask)	8	45	-	-
Watson Studio - Not Selected	-	-	-	-
Watson ML - Not Selected	-	-	-	-
Watson Discovery - Not Selected	-	-	-	-
Kafka - Not Selected	-	-	-	-
CouchDB - Not Selected	-	-	-	-
Total Additional Application Quantities:	**8**	**45**	-	-

Cluster Wide Allocations	vCPU	Memory (GiB)	File Storage (GiB)	DB2 Storage (GiB)
MongoDB - Medium	2	-	30	-
MAS Core	2	2	20	-
OpenShift Worker Nodes	3.5	15.5	240	-
CP4D Base - Not Required	-	-	-	-
Total Cluster Wide Quantities:	**7.5**	**17.5**	**290**	-

Architectural Decisions (MAS)

AD	Topic	Alternatives	Decision & Motivation	
AD #1	Hosting Location	(A)Public Clouds (B)On Premises Data centers (C)Distributed Cloud such as Satellite	Public Cloud	• Quick GTM Strategy • Opex based on operations rather than Capex • Flexible options (IaaS, PaaS) for middleware such as databases and Kafka • Client preference
			On Premises Data Centers	• Regulations and Data Residency influence • Client's sunk investment • Other components of the solution exist in DC.
			Distributed Cloud such as Satellite	• Client gets best of the public cloud like services and still meet data residency or regulatory requirements by subscribing to offerings such as IBM Cloud Satellite.
AD #2	OpenShift Offering	(A)Managed OCP Offerings (ROKS, ROSA, ARO) (B)Bespoke OCP Install	Though with the use of managed OCP offerings there would be reduced complexities for managed services, MAS provides a built in OCP subscription. We do not have a certified solution on such Managed OCP Offerings on ARO/ROSA. MAS also requires a specific version of OCP, which may not be available in such offerings. Recommend reviewing these aspects & choose best fit for client needs.	
AD #3	OpenShift Clusters	(A)Separate OCP Cluster for Production and Non-Production (B)Single OCP Cluster for all environments (C)Single/Multi Node Cluster	Though MAS provides a concept of workspaces which can provide the isolation levels between production and other environment, it is recommended to go with dedicated cluster for Production. A separate cluster also helps in testing upgrades before deploying to production. Single Node OCP clusters can also run MAS Manage, which can be used for Dev/POC environments.	
AD #4	Storage Options	(A)NFS (B)ODF (C)Standard Public Cloud Storage Options	NFS	
			ODF	
			Standard Public Cloud Storage	

Migration Approaches

Pre-migration Steps

- Ensure that you have Maximo Asset Management 7.6.1.2, or 7.6.1.3 installed
- Check for industry solutions and add-ons compatibility.
- Converting JAVA customizations into automation scripts is encouraged.
- Take a backup of all custom XML and RPTDESIGN files, custom java and class files, and attachments.
- Anywhere and Work centers are being replaced by Maximo Mobile and role-based applications.

Manage-First Approach

- Export the maximo schema from the EAM DB
- Install OOB MAS Manage with a blank DB
- Overwrite the maximo schema in the Manage DB with the exported schema from the EAM DB
- Restart the MAXINST pod to trigger the upgrade

OR

DB-First approach

- Copy the EAM DB to a target DB server
- Point the MAS Manage installation to the target DB server during installation
- The installation will automatically process the upgrade

Post-migration Steps

- Configure server bundles
- Deploy JAVA customizations
- Deploy External Integrations
- Configure User integration for LDAP/SAML/SSO
- Configure MAS Application Security access
- Deploy attachments
- Validate and configure any custom configurations in manage
- Testing and debugging issues

** These approaches assume that the source and the target DB are same. Otherwise, a schema conversion activity needs to performed prior to the migration.*

Customization Support

- Same customization is supported

- Differences:

  - Customer need to have a Manage installation in MAS in order or access entitled registry to obtain Maximo classes
    - Manage admin image is generated and stored in internal registry or customer's image registry
    - Customer can use docker or directly using a development environment with the admin image to work on customization. Environment parameters can be used to run the docker image if not directly deployed by MAS

  - Customization must be packaged as a Customization archive (zip with the SMP folder structure)
    - Following existing SMP folder structure
    - Customer archive is to be accessed through http, https, ftp or sftp by wget.
    - Deployment folder structure is more streamlined
    - Customer must follow the product.xml standard for customization
    - Customer archive is to be accessed through http, https, ftp or sftp by wget.

- Customization archive to be specified as part of Manage CR spec so that the build process will include it. Multiple customization archives are supported

Journey from EAM to MAS

Begin **Complete**

Planning

Project Planning

- Budget
- Approvals
- Timeframes
- requirements definition
- Quotes and any additional contracts required

Initial Set Up and preconditions

- Deploy MAS Dedicated or SaaS and applications
- Remediate changes as required
- Setup integrations including any VPN
- Preconditions met

Test 1

- Migrate database
- Upgrade to latest version
- Finish remediation of changes needed

Test 2

- Repeat the process of upgrading and migrating database
- Test as required
- Take accurate timings of steps for Production cutover
- Also known as the dry run or dress rehearsal

Live on MAS

- Cutover production weekend

Post Live MAS activities

- Backflow to non-production instances
- Hypercare for 1 week after cutover

Reference Links

- Upgrading from Maximo Asset Management to IBM Maximo Manage
- Maximo IBM Documentation
- Maximo Managed Services Offering Documentation
- Move Forward with Confidence to Maximo Application Suite