

Architecture Transformations

Cloud Services



Modernization



Data Integration



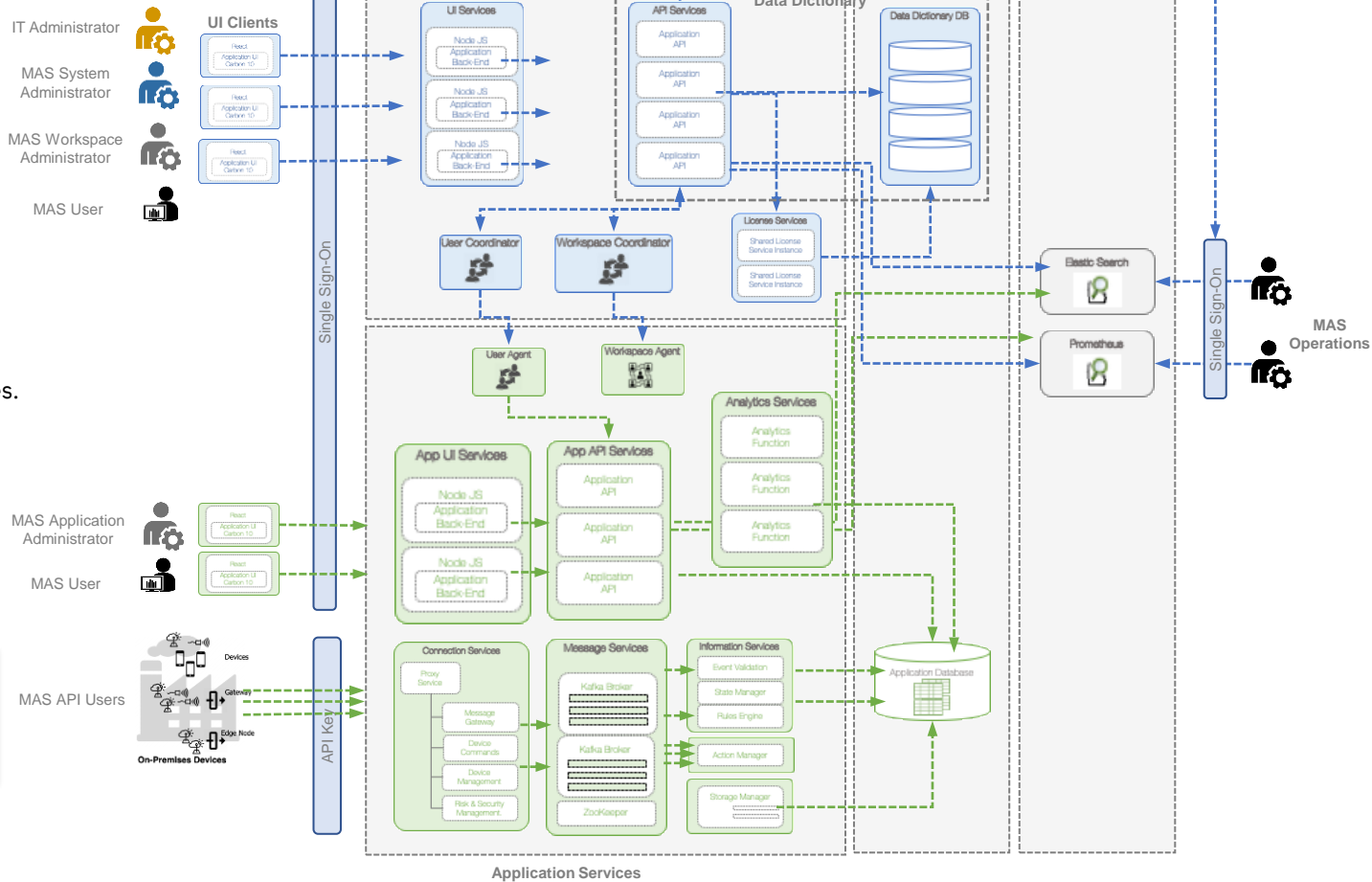
Optimizations



Customization and Multi-Tenancy



Reference Architecture



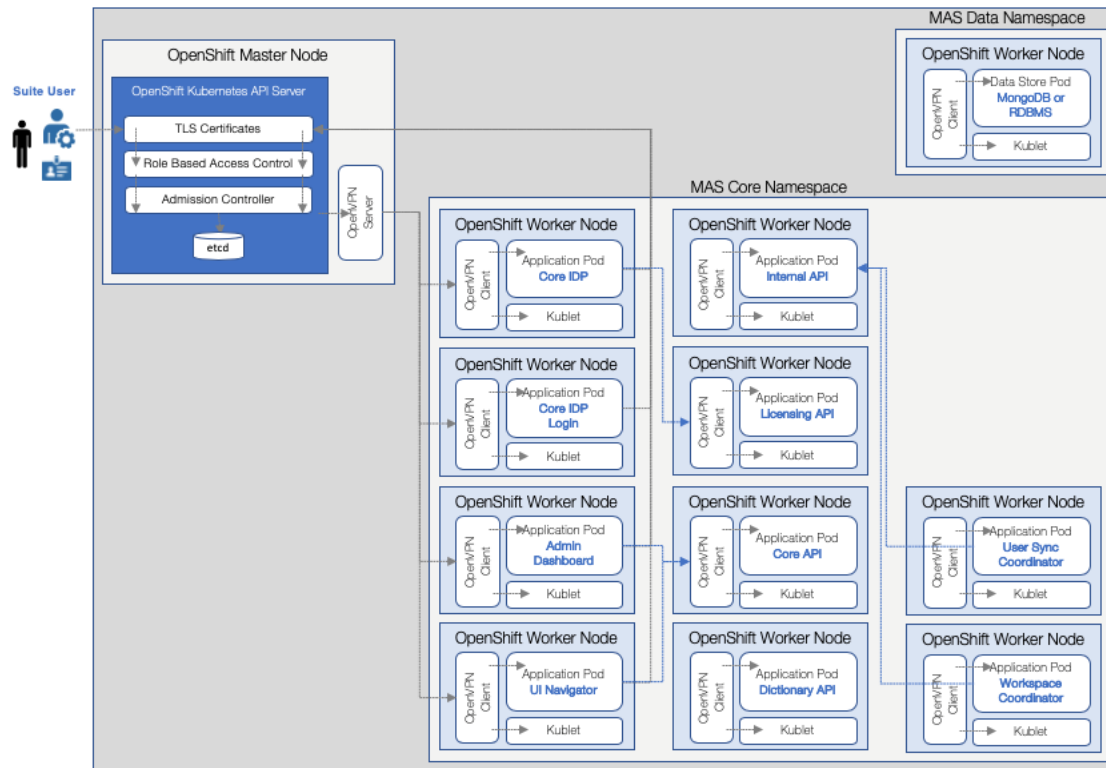
Logical Components, with a loose relationship with containers/pods across the OpenShift worker nodes.

Roadmap:

Scale down the services to require less infrastructure and worker nodes.

Reference Architecture

Application Suite Core Services Node/Pod Flows



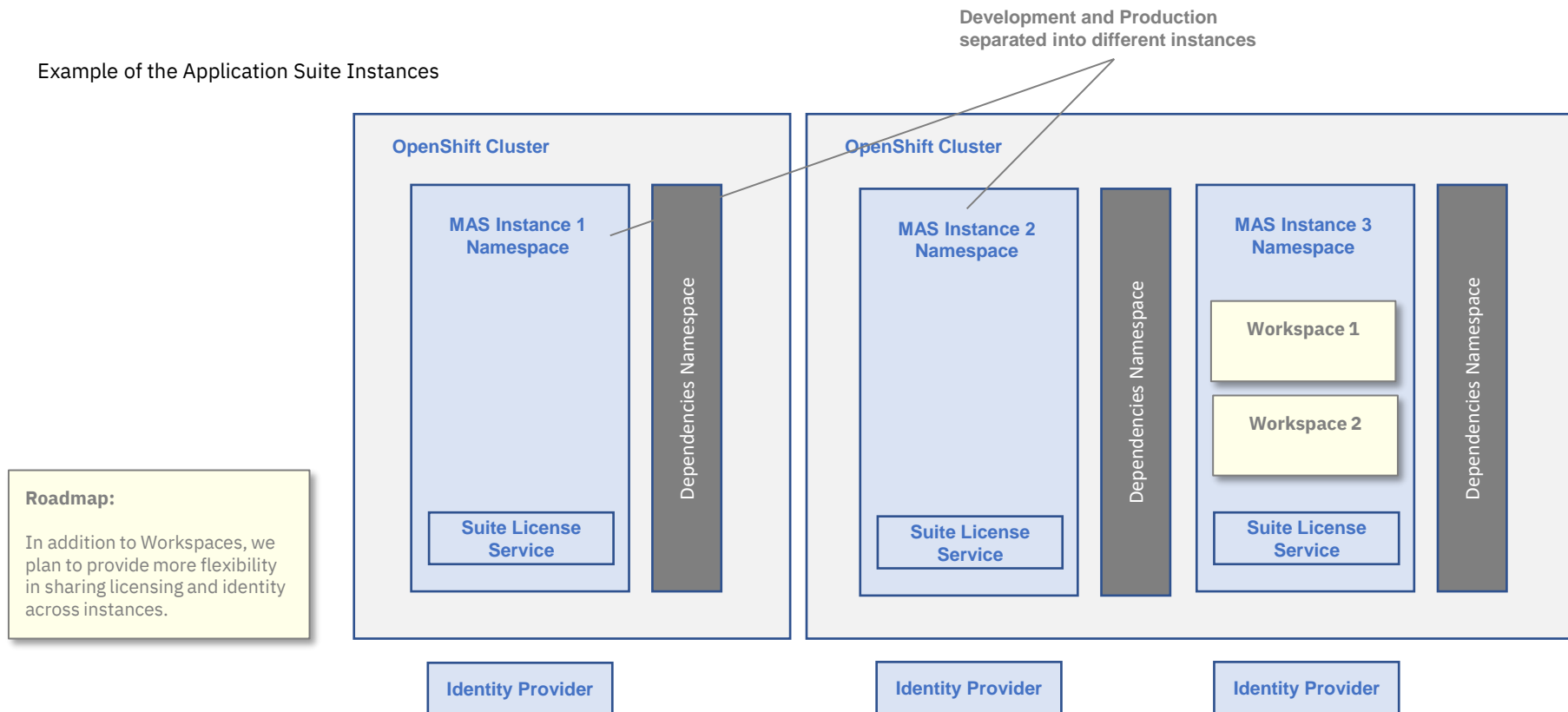
Example of the OpenShift Nodes

Roadmap:

As we gain more performance data from different customer scenarios, we can improve container configuration for efficiency of worker nodes to avoid over provisioning.

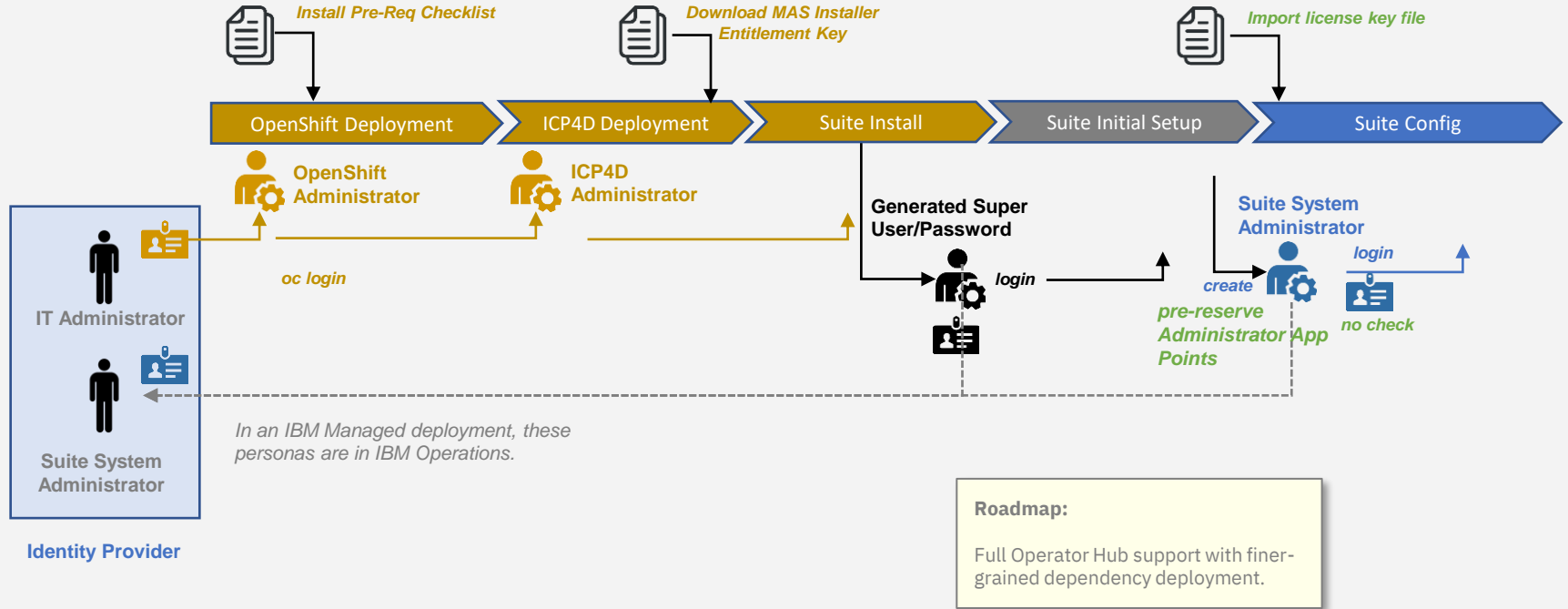
Reference Architecture

Example of the Application Suite Instances



Deployment

Install & Initial Setup Scenario



User Management



Create a new user LDAP User ☒ Yes

1 Identity

Display name: Bryan Boyd

Contact email: bbyod@ibm.com

Username: bbyod@ibm.com

Password: Managed by LDAP

2 Entitlement

Application: Limited (5 AppPoints)

Administration: Base (10 reserved AppPoints)

[Compare application entitlements](#) [Compare administrator entitlements](#)

3 Access

Suite administration

☐ System configuration ☒ User management ☒ Workspace management

Application	User role
Manage	N/A (Coming soon)
Monitor	Administrator
IoT (Tool)	Administrator

Cost: 10 reserved AppPoints

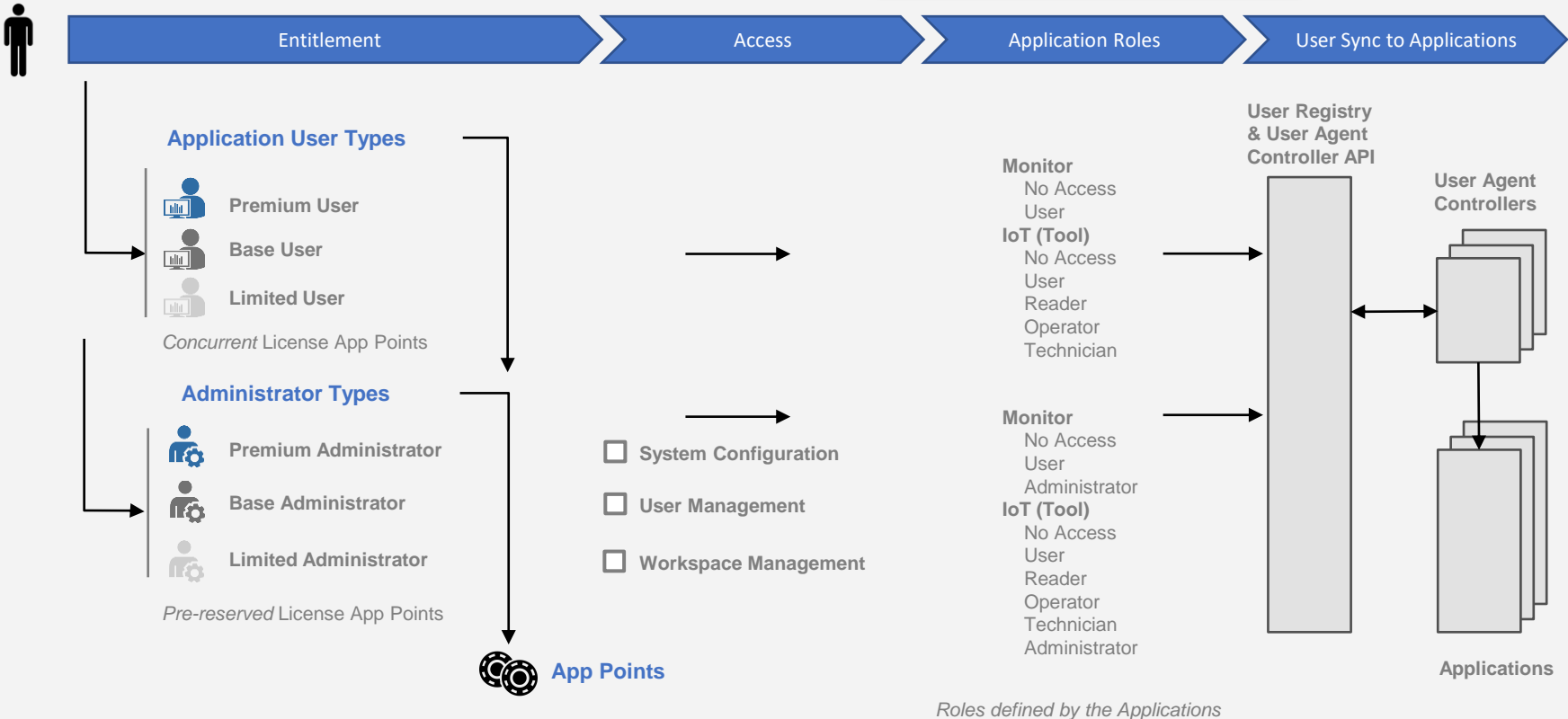
Centralized User Management for:

1. Create a user once, shared by all applications in the Suite
2. Integration with LDAP, OpenID
3. Entitlement, Access, Application Roles
4. Enables Suite Level Single Sign-On
5. Enables Suite Level User Preferences

User Management

Roadmap:

Coordinated Application Roles and additional workspace and tenant features.



Licensing

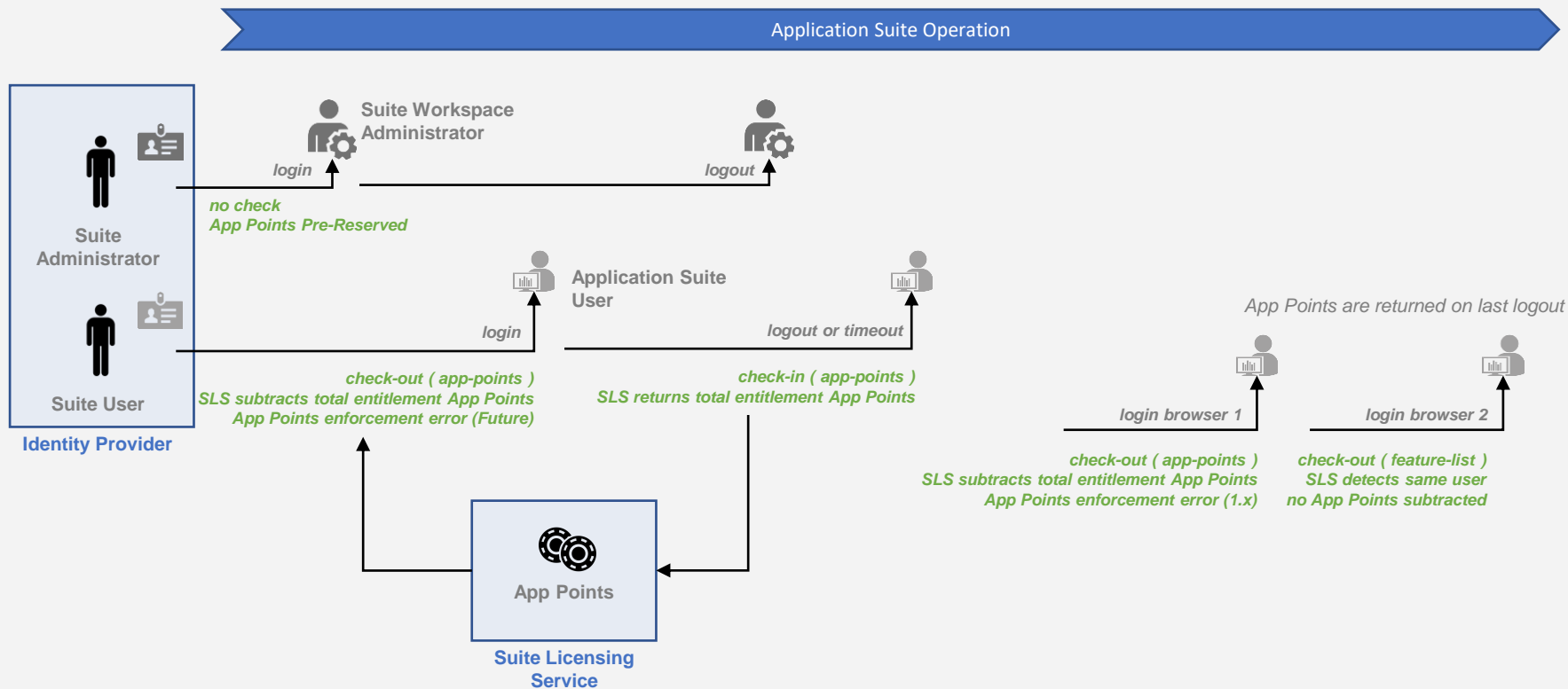
Centralized Licensing Service for:

1. Enabling flexible use of all features in the Suite, based on “App Points” associated with the User Type.
2. Handles different point types, from pre-reserved to concurrent to add-ons.
3. Integrates with the IBM License Key Center for flexible number of App Points under the same entitlement.
4. REST API wrapper, containerized and OpenShift deployment.
5. No enforcement initially, log of App Points for reporting.
6. Separation of instances initially handled with individual license key files from the License Key Center.

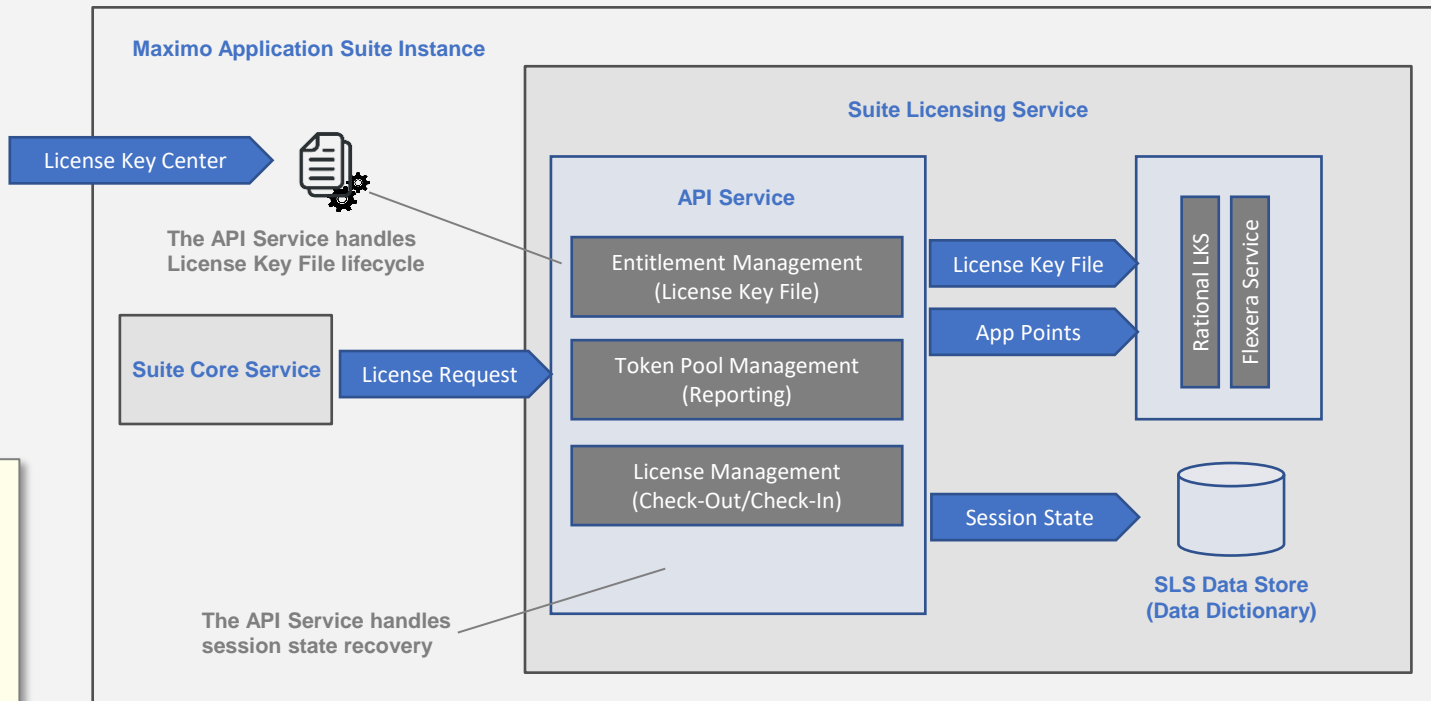


Concurrent User	Limited 5	Base 10	Premium 15	Note
Maximo Manage Limited	✓	✓	✓	In MAS 8.0 Any 3 Maximo modules (cannot be Administration, Integration, System Config, Security) ability to view reports, change status and update work orders in any module (former Express capability)
Linear Asset Manager	✓	✓	✓	
Calibration	✓	✓	✓	
Spatial User	✓	✓	✓	
Anywhere	✓	✓	✓	
Industry Solution Limited	✓	✓	✓	
Monitor	✓	✓	✓	In MAS 8.0
Maximo Manage		✓	✓	
Scheduler/Plus		✓	✓	Includes Scheduler, Scheduler Plus and Graphical Appointment Book functions
Health		✓	✓	In MAS 8.1
Manage Industry Solutions			✓	Access to any and all Industry Solutions
ACM			✓	
Managed Service Provider			✓	
Health, Safety and Environment			✓	
Predict			✓	In MAS 8.1

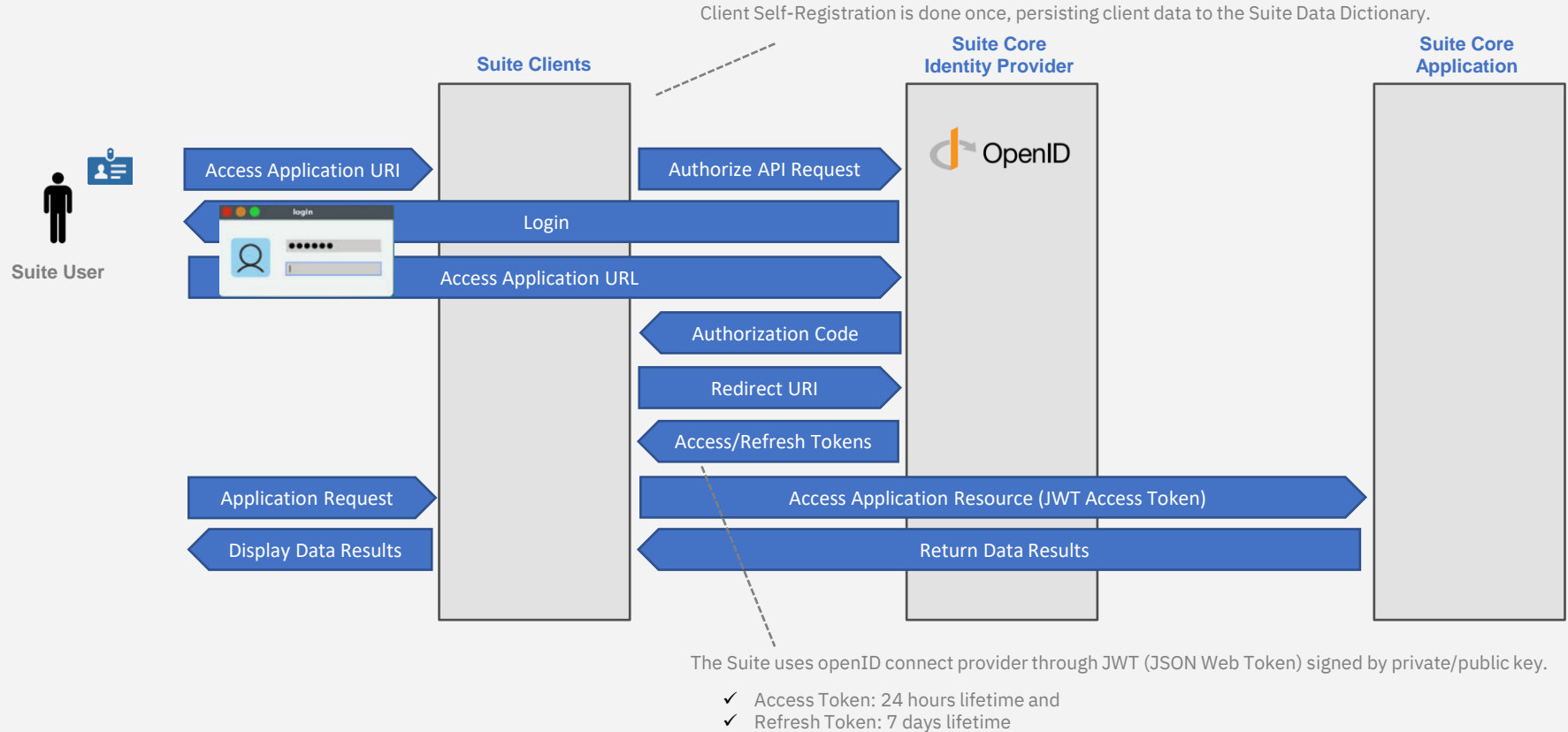
Licensing



Licensing



Security Authentication Flow



For reference, see: <https://auth0.com/blog/refresh-tokens-what-are-they-and-when-to-use-them/>

Security Certificate Management

MAS is using TLS re-encrypt model.

Re-encryption is a variation on edge termination where the router terminates TLS with a certificate, then re-encrypts its connection to the endpoint which may have a different certificate.

Therefore, the full path of the connection is encrypted, even over the internal network.

For additional security, MAS is using different certificates for internal/external communication.

Public Certificate:

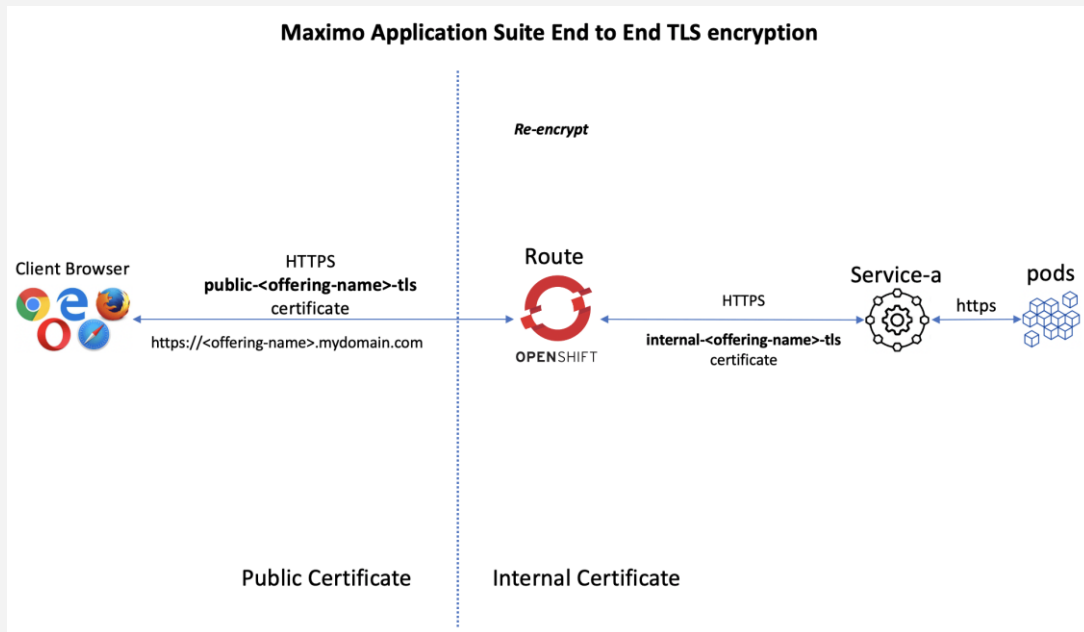
Certificate Name: public-offeringName-tls

Used for public endpoint only. It may be generated by a trusted CA, client specific CA or self-signed (for non-production).

Internal Certificate:

Certificate Name: internal-offeringName-tls

Used for internal cluster communication. It is signed by MAS internal self-signed CA, generated during MAS installation.



IBM Managed Service

