Distributed Hybrid Topology for Dynamics 365 Supply Chain Management Configuration and Administration

Hiren Naik (Sr. Solution Architect)
Aaron Murch (Sr. R&D Solution Architect)
Zach Greenvoss (Principal R&D Solution Architect)
Agenda

• Overview
• Configuration
• Data Pipeline
• Demo
• Best Practices
• Q&A
Recap – Introduction to Distributed Hybrid Topology for Dynamics 365 for Supply Chain Management

Value Proposition
- Operations scalability
- Resiliency against connectivity
- Availability across maintenance windows

Deployment Options
- Cloud Hub + Cloud Scale Unit
- Cloud Hub + Edge Scale Unit
- Tactical Edge

Workloads
- Manufacturing Execution System (MES) workload
- Warehouse Execution System (WES) workload

Licensing
- Basic scale unit add-in (200K Transactions/Tenant/Month)
- Standard scale unit add-in (1500K Transactions/Tenant/Month)
Overview
Distributed Hybrid Topology for Dynamic 365 Supply Chain Management
What is covered

- Configuration of **Cloud Hub**
- Configuration of **Cloud Scale Unit**

What is not covered

- Configuration of **Edge Scale Unit**
Configuration
Configuration – Tier 1 One box environments

Step by step usage guide · SCMScaleUnitDevTools

Why start with one box environments setup

- Validate processes, customizations, and solutions
- Data and customizations can be applied to the one-box environments
- This setup provides the best way to identify and fix issues
- Self service with minimum cost

Pre-requisites

- Configure up to two "Tier 1" one-box environments (CHE) to take the role of a hub and a scale unit
- Declare one of the two environments to become the hub and other as scale unit
- Tool is provided as a command line interface to initiate configuration activities
- Parameter file in XML format
- Configuration of an AAD application for the configuration tool to control the hub and scale unit
- Scale Unit environment must have empty database
- Warehouse management App needs to be configured against Scale unit environment
Configuration – Tier 1 One box environments

- Install the Tool on both Hub and Scale Unit environment
- Verify the configuration file is same and copied on both Hub and Scale unit environment

Running the Tool

1. Initialize the hybrid topology
   - this step must be run on Hub environment first
   - this step must be run on Scale unit environment after successfully running on hub

2. Connecting the scale unit to the hub – this step can be run either on hub or scale unit environment
   - Prepare Environments for Workload installation
   - Prepare Hub first for Workload installation
   - Prepare scale unit after hub has been successfully prepared

3. Installing the workloads – this step can be run either on hub or scale unit environment
   - Install workload on Hub first
   - Install workload on Scale unit after workload has been successfully installed on hub
Demo – Cloud hosted environments configuration for Distributed hybrid topology

- Cloud hosted environments – Hub and Scale Unit
- SCM Scale unit Dev Tools
- Configuration file
- Configuration of environments and workloads
Config – using Scale Unit Manager Tier 2+ Environments

- Start Onboarding process using Scale Unit Manager portal (SUM)
- Send request to enable your Tenant

Microsoft will review your request and inform you about the next steps
- Microsoft will be working closely with you to enable scale units in the hybrid topology for your business scenario
- After the onboarding is completed, you can configure scale units and workloads
1. Add Hub environment
2. Add Scale unit environment
3. Define workloads
   - Warehouse Execution System (WES) workloads
     - Define workload for specific Legal entity, Site, Warehouse
   - Manufacturing Execution System (MES) workloads
     - Define workload for specific Legal entity and Site
   - Note: When workloads are defined it will go from Status Pending install -&gt; Running
Config – using Scale Unit Manager Tier 2+ Environments

Manage Workloads
Pause/Resume scale unit communication
• Needed before & after servicing

Upgrade workloads
• Workload definition may have changed,
  Update existing workloads after servicing operation

Transfer workload between Hub <-> Scale Unit
• Data will be synced between Hub and Scale unit
• Ownership will be set to both Hub and Scale unit to execute workloads

Emergency transition to hub
Decommission distributed topology
Data Pipelines

• Created when workloads are defined in SUM
• SYS, WES and MES workloads create Batch jobs
• Data synced between Hub and scale unit near real time using batch jobs
• Batch jobs are automatically setup to run every 1 minute
• Download sessions / Upload sessions
• Ability to download file and check data package
Workspace - Supply chain scale unit workloads

- View configured workloads
- View Workload types by dimensions
- Check status of workload setup, last run status

- Message processor messages on Hub
  - View message exchange between hub and scale unit
  - Ability to filter specific message type
  - Ability to Process failed messages
  - View message content

Message processor messages - Supply Chain Management | Dynamics 365 | Microsoft Docs
Demo - Manufacturing execution

Scale Unit Manager Portal
Hub - Production order creation
Hub - Download sessions
Scale Unit - Upload sessions
Hub - Message Processor
Scale unit – Production Jobs execution
Hub - Production order RAF
Message processor business event
Manufacturing Execution workload (MES workload)

Hub
- Engineering master data management
- Engineering process management

Plan
- Create order
- Schedule order
- Release to floor

Finalize
- Time correction
- Update inventory
- Approve time registrations
- Overtime, pay
- Cost calculation and accounting

Scale unit
- Production floor execution interface
- Mixed reality Guides

Execution
- Clock in/out
- Start jobs
- Report output and scrap
- Register breaks
- Register indirect activities

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Best practices

- Start testing for DHT using Tier1, no license needed for Tier1
- Do not to keep Scale unit to Hub connectivity offline for more than 24 hours
- Maintain Hub and scale unit on same platform and application version
- Extensions using X++ are supported as Hub and scale unit architecture built on top of D365 Supply chain platform
- Carefully consider extensions which could affect WES/MES workloads
- Extensions code base must be on same version for both on Hub and Scale unit
- Avoid duplicate master records - Do not create master records into Scale unit either manually through UI or using extensions, General rule of thumb - Hub is master of records
- Pause scale unit communication before applying service updates / Database restore
- Resume scale unit communication after applying service updates / Database restore
- Carefully consider Database movement on Hub and Scale Environments
- Whenever data is restored on hub, restore scale unit with empty database
- Consider Distributed hybrid topology when latency from manufacturing site is high, needed business continuity without downtime, workloads optimization
Resources

- Scale units in a distributed hybrid topology - Supply Chain Management | Dynamics 365 | Microsoft Docs
- Manufacturing execution workloads for cloud and edge scale units - Supply Chain Management | Dynamics 365 | Microsoft Docs
- Warehouse management workloads for cloud and edge scale units - Supply Chain Management | Dynamics 365 | Microsoft Docs
- Enhanced manufacturing execution workloads on scale units | Microsoft Docs
- Enhanced warehouse execution workloads on scale units | Microsoft Docs
- Tools for deploying and configuring scale units for Dynamics 365 Supply Chain Management on one-box developer environments
Thank you!