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DynamicsCon
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Production Execution

D365 vs External MES vs Warehouse application

The Final Showdown

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Director of Solution Architecture at Argano

11 years Dynamics experience
- Dynamics AX 2009 & 2012
- Dynamics 365 Finance and Supply Chain
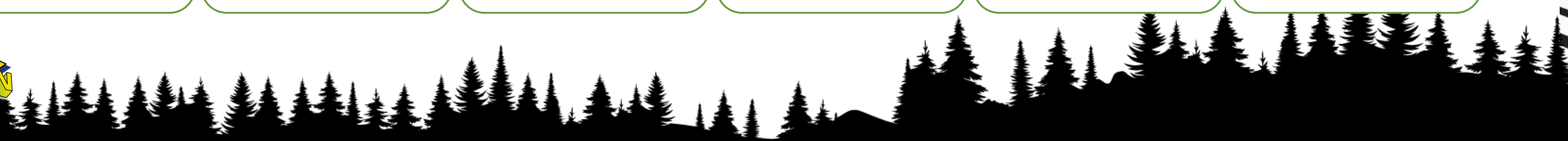
Background in Chemical Engineering

4-time Fast Track Recognized Solution Architect

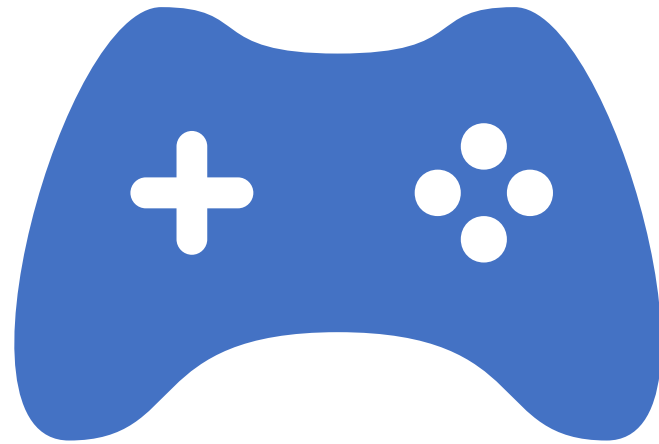**Experience in variety of industries**
- Chemical
- Service
- Medical
- Aerospace
- Assemble to Order
- Wholesale Distribution

Agenda

Powerpoint – Boring

Demo – Fun

Q&A – More Fun

Learning Objectives

Understand

Understand the options for production transactions within D365

- Legacy options (Production, Job card)
- Production floor execution
- MES
- Warehouse application

Describe

Describe setup and configuration of external MES solutions with D365 and limitations

Analyze

Analyze the pros and cons of each option for production transactions

Native D365 Options

Legacy Options
Production Floor Execution

Standard Production Transactions

- Utilization of Production orders form to create and post journals directly on the production order
  - Picking list
  - Route card
  - Job card
  - Report as finished
- Utilized frequently when external system or paper-based product is used and no integration is desired
  - Paperwork turned into back office for transactions

Standard production transactions

- PROS
  - Least amount of configuration
  - No additional hardware needed
  - Automation of some transactions with flushing (forward/backwards)
    - Materials
    - Route

- CONS
  - Delay in virtual transactions compared with actual physical transaction
  - Training operators on complicated system transactions
  - Material location/inventory maintenance on picking lists
  - Lack of handheld option OOB

Job Card Terminal/Device

- Different configurations of a terminal (computer or device) for job-based production transactions.

- Allows user to complete production transactions including
  - Start/stop individual jobs
  - Record breaks and clock in/out
  - Record good and error quantity completed
  - Update material consumed at each step
  - Utilize helpers (secondary) workers for a single step

Job Card Terminal/Device

- PROS
  - Transactions occur near real time
  - Allows for scheduling of work for an operator by supervisor
  - More intuitive user interface (once setup)
  - Adjustment for transactions completed by operator

- CONS
  - Complicated setup/configuration
  - Limited functionality with custom fields/processes
  - Limited interaction with warehouse management
  - Additional hardware requirement
  - Requires use of time and attendance
  - Requires Job scheduling

Production Floor Execution

- Updated interface for the job card terminal
- Allows for all of same transactions and adds functionality for viewing work instructions associated route operations
- More intuitive user interface that is optimized for mobile tablets
- Can include project based transactions along with production
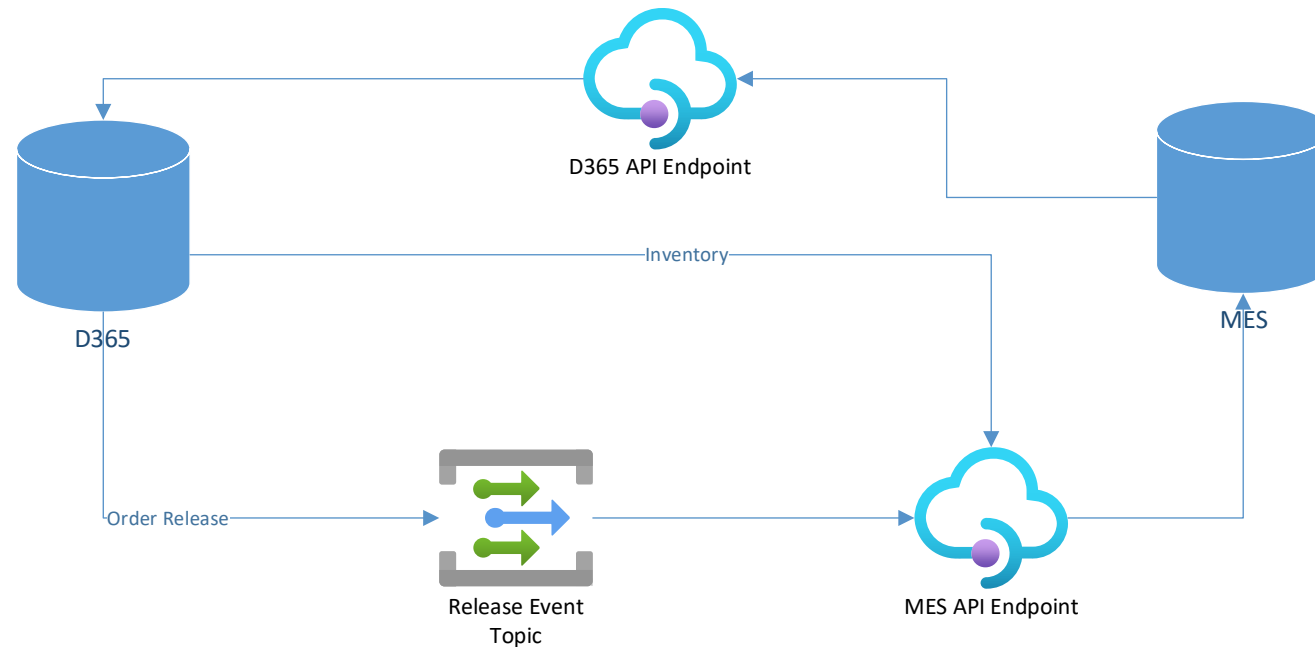
Production Floor Coming Soon…..

- Ability to use Production floor execution without needing to include T&A module and approval of timecards
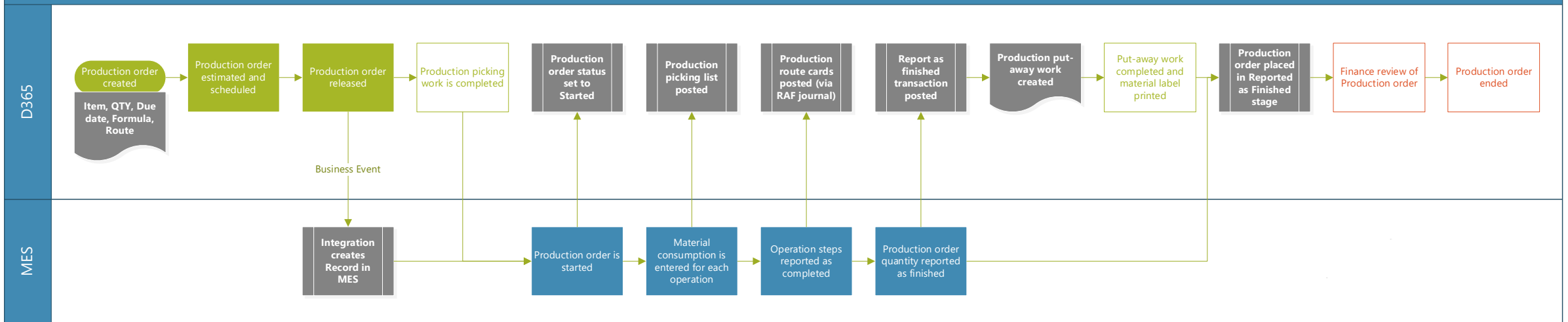
MES Integration

MES Interface Architecture

MES Interface Process Flow

MES/D365 Production flow with Integration

D365 row:
- Production order created (Item, QTY, Due date, Formula, Route)
- Production order estimated and scheduled
- Production order released
- Production picking work is completed
- Production order status set to Started
- Production picking list posted
- Production route cards posted (via RAF journal)
- Report as finished transaction posted
- Production put-away work created
- Put-away work completed and material label printed
- Production order placed in Reported as Finished stage
- Finance review of Production order
- Production order ended

Business Event

MES row:
- Integration creates Record in MES
- Production order is started
- Material consumption is entered for each operation
- Operation steps reported as completed
- Production order quantity reported as finished

MES Integration Configuration

Enable the feature in feature management

Setup Production release business event

Set batch job to process inbound messages

MES Utilization Logic

Improves the transaction accuracy when external MES system utilized for the detailed transactions for production

MES records times, step completion and material consumption

On-hand inventory typically needed in MES
- Use Inventory availability microservice or API interface

Transactions needed real-time in D365 for traceability, finance or shipping

Leveraged heavily in controlled industries
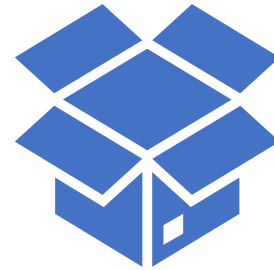
Warehouse App

Material Picking

Typically done with the completion of picking work that is released from the production

Moves material from warehouse to eventual production input location

- Can be done with a single transaction of multiple steps within the work

Consumption either flushed or can be completed with "available on location" to post upon picking completion

Individual production registration without picking also allowed

Serial number or batch number registration

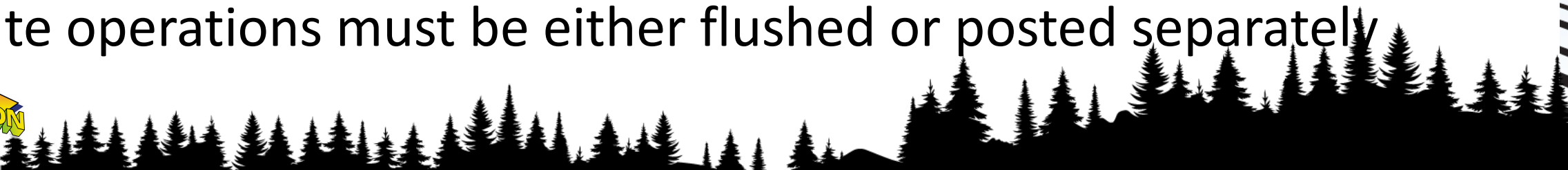Complete registration of additional or actual amounts on production order

Start and Report as finished

Easy method to record the quantity of material started and produced using a handheld

Can create labels for materials reported including registering individual serial numbers

Put-away work can be completed immediately or at a later time

Route operations must be either flushed or posted separately

Demos

Questions?

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