

Industrial Internet of Things using Modern Protocols for Health Monitoring

Joel Neidig, Technology Manager

A continued commitment to excellence...

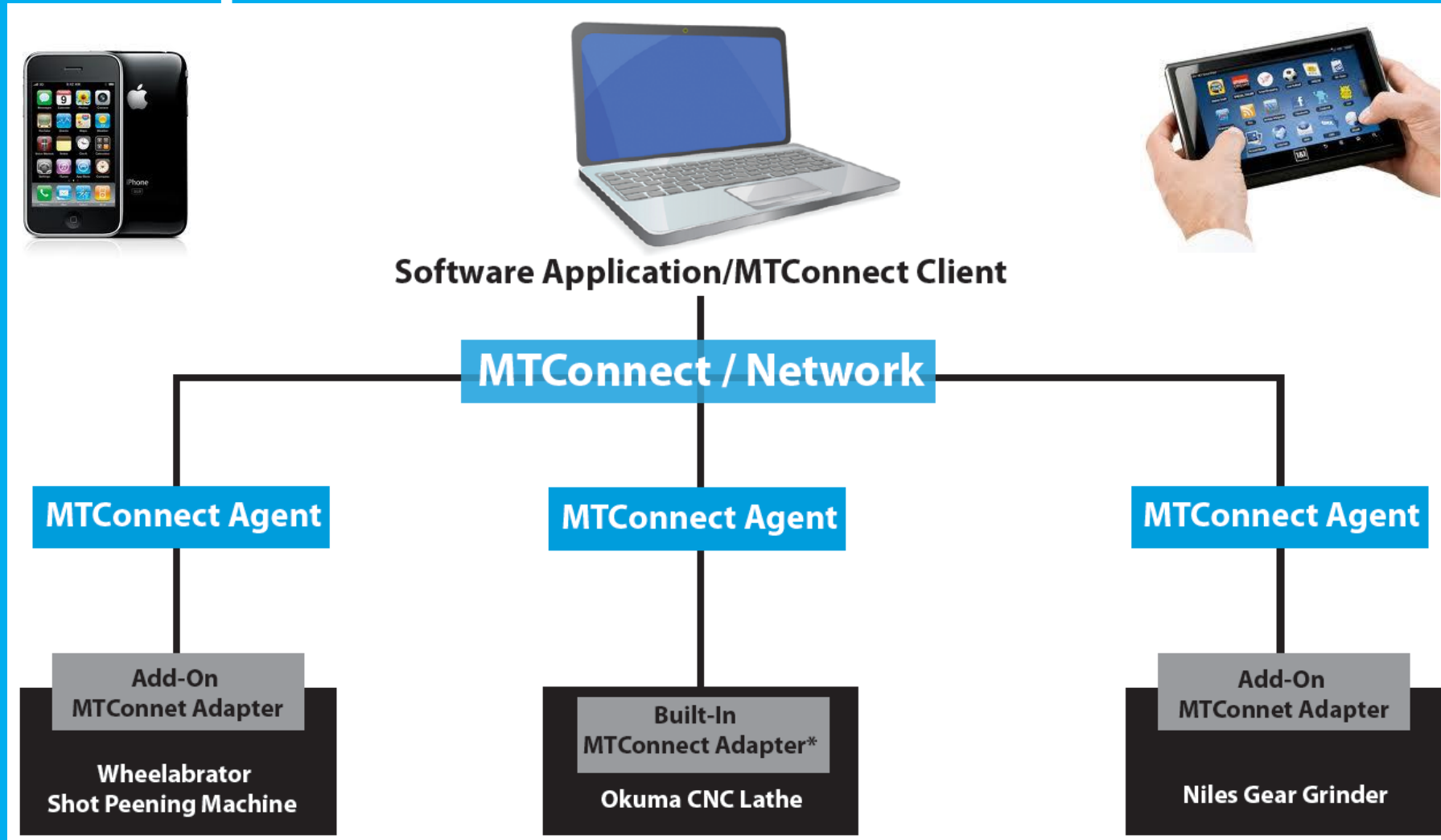


Where do our components go?

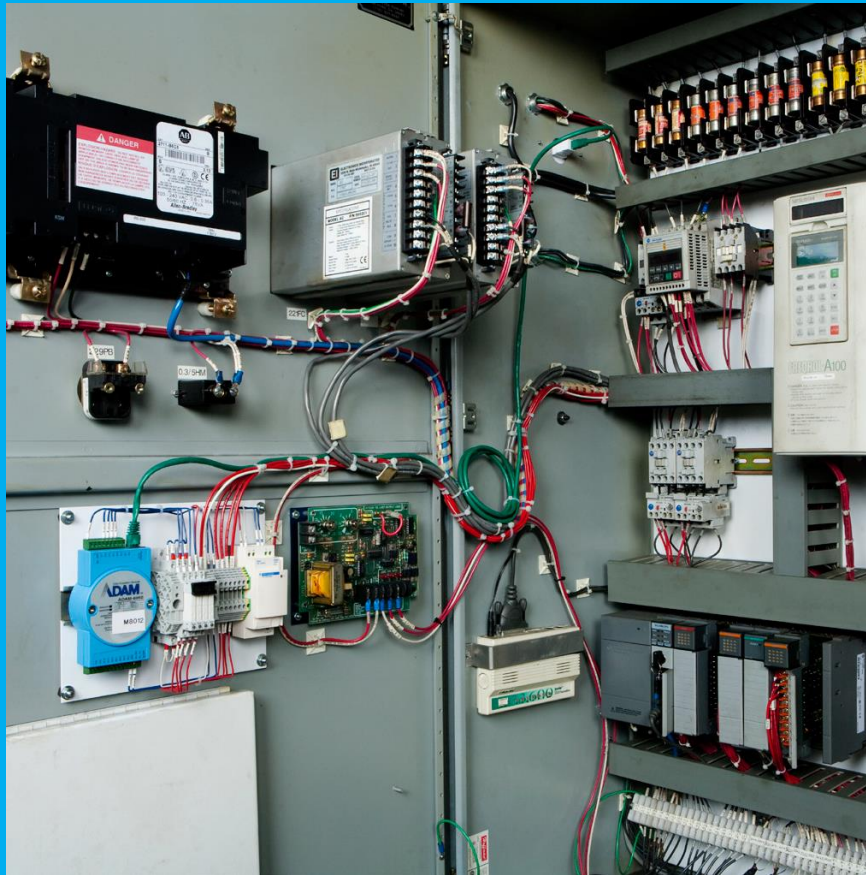
- Tractors
- Haul trucks
- Mining shovels
- Wind turbines
- Land-based satellites
- Off-shore rigs



Implementation



Hardware Adapters for Legacy Machines



Energy Monitoring

Reports » Energy

Energy Consumption

Simple Custom Advanced

Criteria

- Day
 - Today
 - Yesterday
 - Choose Day
- Week
- Month

Include only Business Hours
 Include only Business Days

[Reset Report](#) [Generate Report](#)

About Energy Report

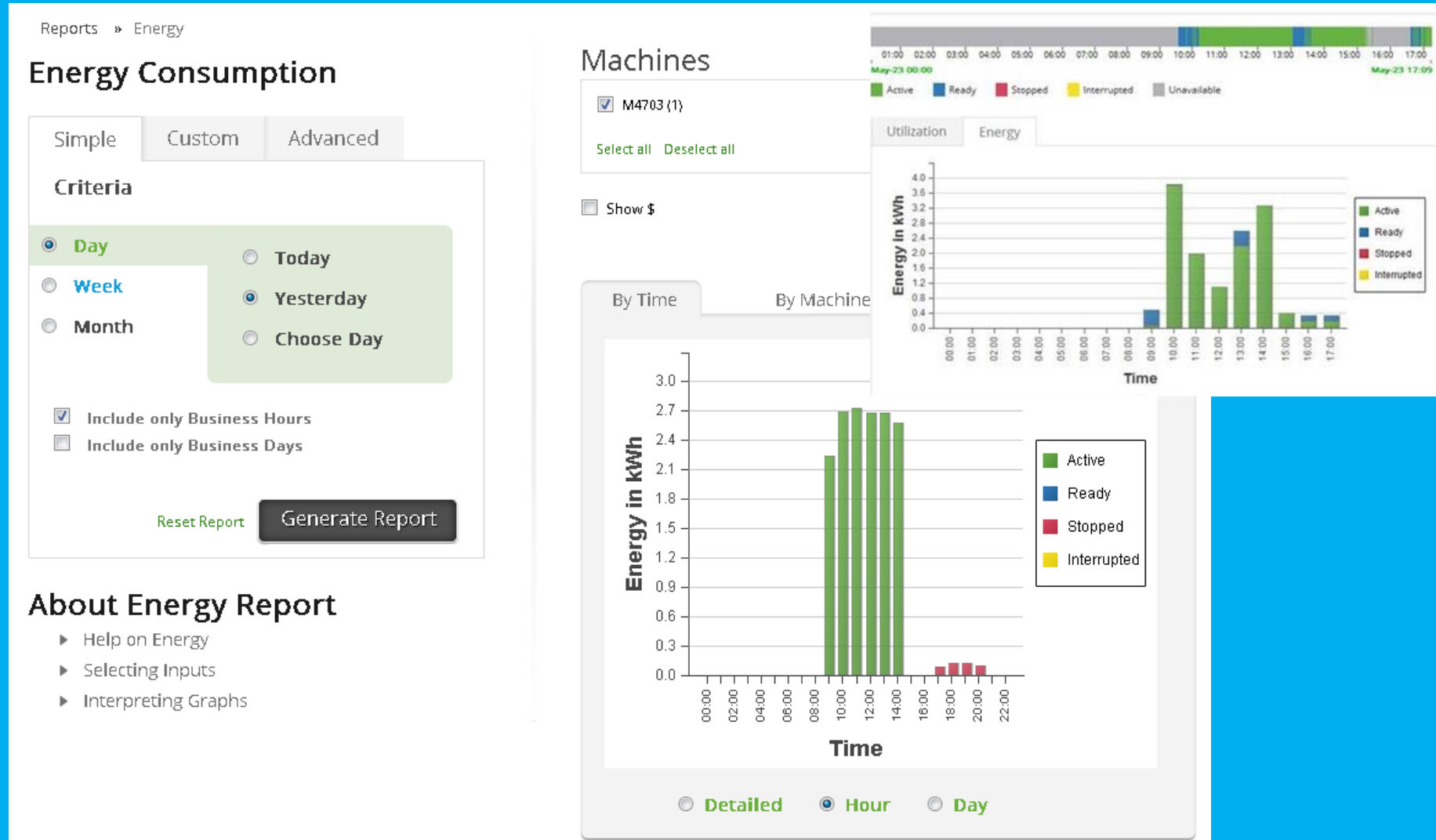
- ▶ Help on Energy
- ▶ Selecting Inputs
- ▶ Interpreting Graphs

Machines

M4703 (1)
[Select all](#) [Deselect all](#)

Show \$

Utilization Energy



The image shows a software interface for energy monitoring. On the left, there's a 'Reports' menu with 'Energy' selected. Below it is the 'Energy Consumption' report configuration panel, which includes tabs for 'Simple', 'Custom', and 'Advanced'. The 'Criteria' section allows users to select a time period (Day, Week, Month) and a specific day (Today, Yesterday, Choose Day). There are also checkboxes for 'Include only Business Hours' and 'Include only Business Days'. At the bottom of this panel are 'Reset Report' and 'Generate Report' buttons. Below the configuration panel is an 'About Energy Report' section with links for 'Help on Energy', 'Selecting Inputs', and 'Interpreting Graphs'. On the right, the 'Machines' section shows a list of machines, with 'M4703 (1)' selected. There are options to 'Select all', 'Deselect all', and 'Show \$'. Below this, there are two charts. The top chart is a 'By Time' bar chart showing 'Energy in kWh' on the y-axis (0.0 to 4.0) and 'Time' on the x-axis (00:00 to 17:00). The bars are color-coded by machine status: Active (green), Ready (blue), Stopped (red), Interrupted (yellow), and Unavailable (grey). The bottom chart is a 'By Machine' bar chart showing 'Energy in kWh' on the y-axis (0.0 to 3.0) and 'Time' on the x-axis (00:00 to 22:00). It also uses the same color-coding. At the bottom of the 'Machines' section, there are radio buttons for 'Detailed', 'Hour', and 'Day' views.

Energy in kWh

Time

Energy in kWh

Time

Detailed Hour Day

Video Monitoring



M5213 (Niles ZPI 25) Daily Status

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→ ARGOS FACTORY

→ A: Gear Grinding

→ M5207 (Pfauder PE1600)

→ M5209 (Niles ZP40)

→ M5213 (Niles ZPI 25)

→ A: Milling

→ M1614 (G&L VMC)

→ A: Turning

→ A: Sawing

→ PLYMOUTH FACTORY

→ P: Allison

→ M1429 (LC50)

→ M1616 (Okuma MC4VA)

→ M1617 (Okuma MC4VA)

→ M1704 (Okuma MC60H)

→ M1715 (Okuma MC50H)

→ M1720 (Okuma MA60H)

→ M4133 (Okuma LC30)

→ M4140 (Okuma LB25)

→ M5306 (OD Grinder)

→ P: Milling

→ M1716 (Okuma MA60H)

→ M1717 (Okuma MA60H)

Utilization

Video

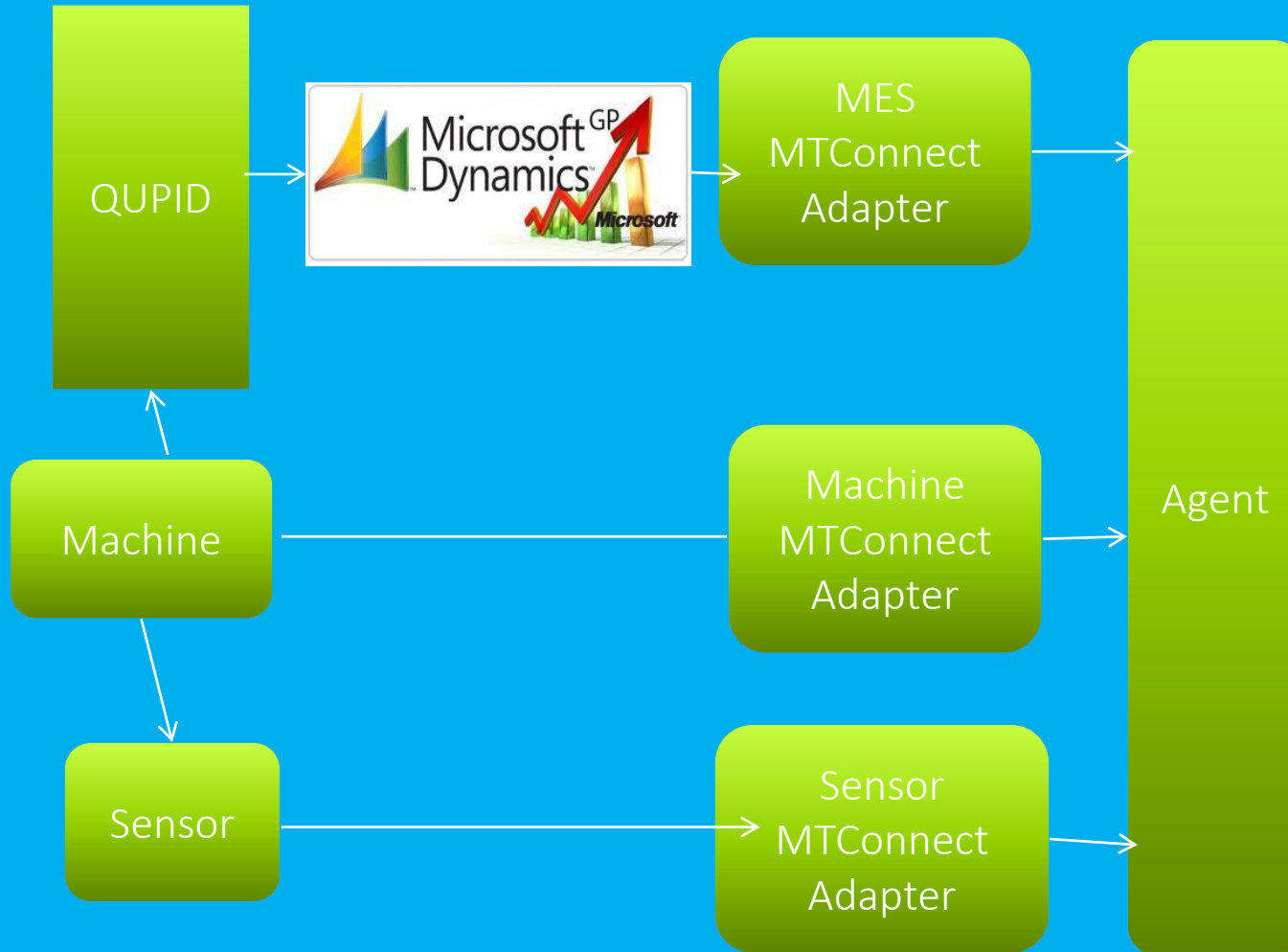
Cam1

Cam2

[Help on QuickTime Settings](#)

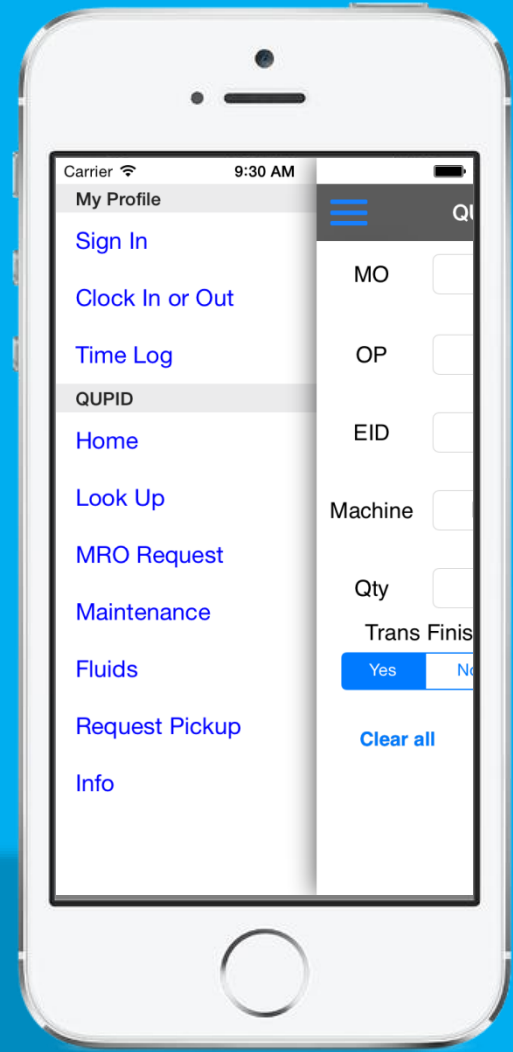


MES Integration Architecture



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</ComponentStream>
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QUPID Mobile App (MES)



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Serial Nos:

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M12-10500

Manufacturing Order Banner

37046
Job ID:

3069135
Item ID:

Cam Blanks - Rev 01
Item Description:

3069135 **01**
Drawing ID: Rev:

Cam, Blank
Drawing Description:

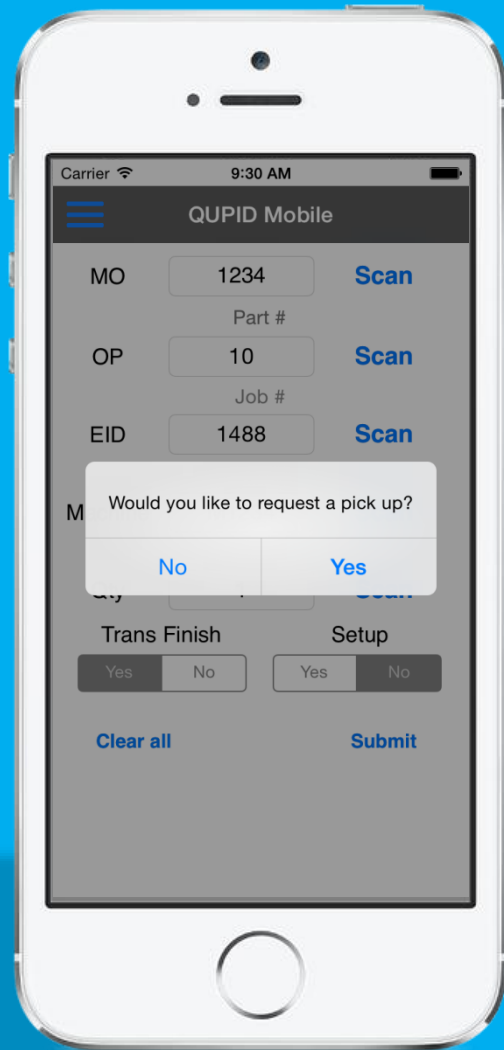
50 **EA** **50** **EA** **1** of **1**
MO Quantity: UOM: Container Qty: UOM: Container:

OP	Description	Comp EID	Date
005	Receive Material		
010	Inspect Material		
015	Machining - Saw Cut		
020	Machining - Turning		
030	Machining - Turning		
040	Machining - Drilling		
060	Inspection		
070	Inventory		

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F241061C 8/12/2011 ITAMCO Page 1 of 1

Request a Pickup



Information Model -- Flow

Use cases:

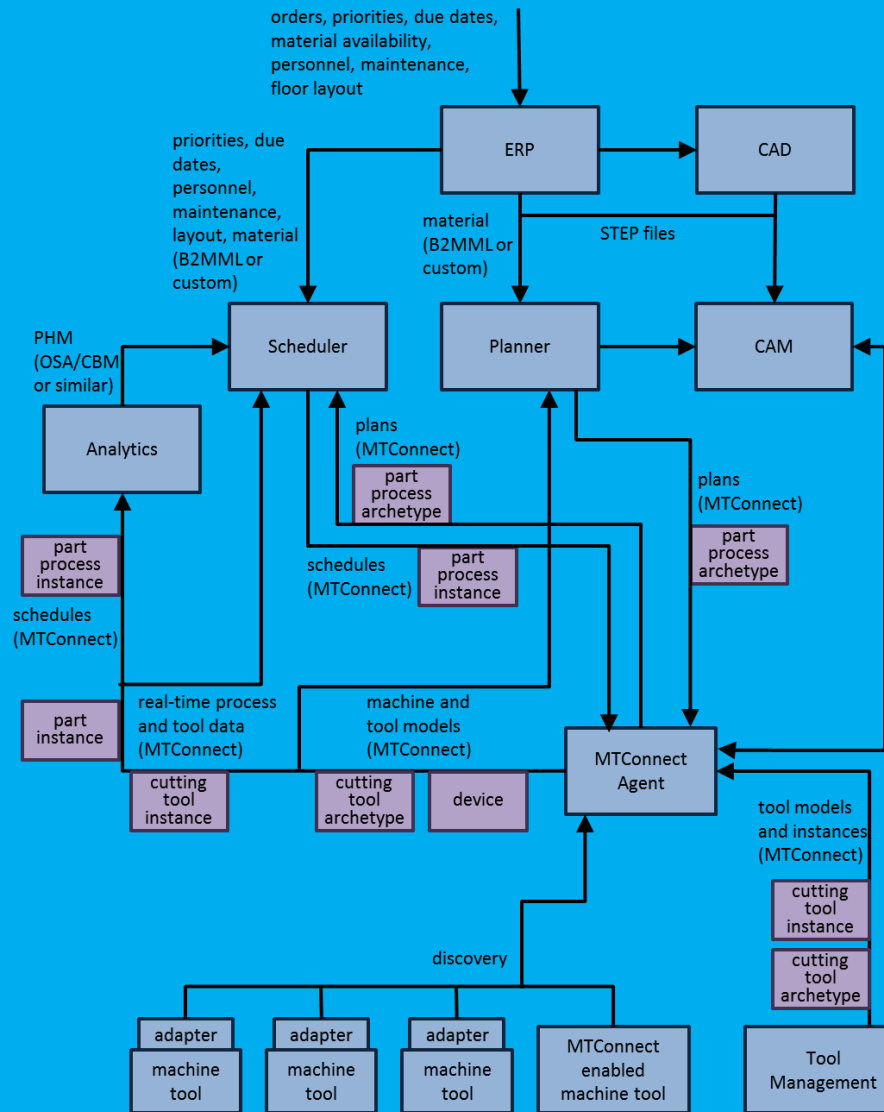
Dynamic planning & scheduling

Replanning / rescheduling

Machine health and preventative maintenance

Adding new equipment and discovery

MTConnect Agent is the core of the data exchange





Do you want to
get coffee?



Panel containing a list of text, a 3D wireframe model of a building or structure, and three circular navigation icons at the bottom.



Brenda
10 min



U+ LABS



Microsoft HoloLens



Thank you!

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itamco.com/innovation.html