THINGWORX NAVIGATE STRATEGY & ROADMAP

ptc | forum europe

Graham Birch
Director, Product Management

November 2018

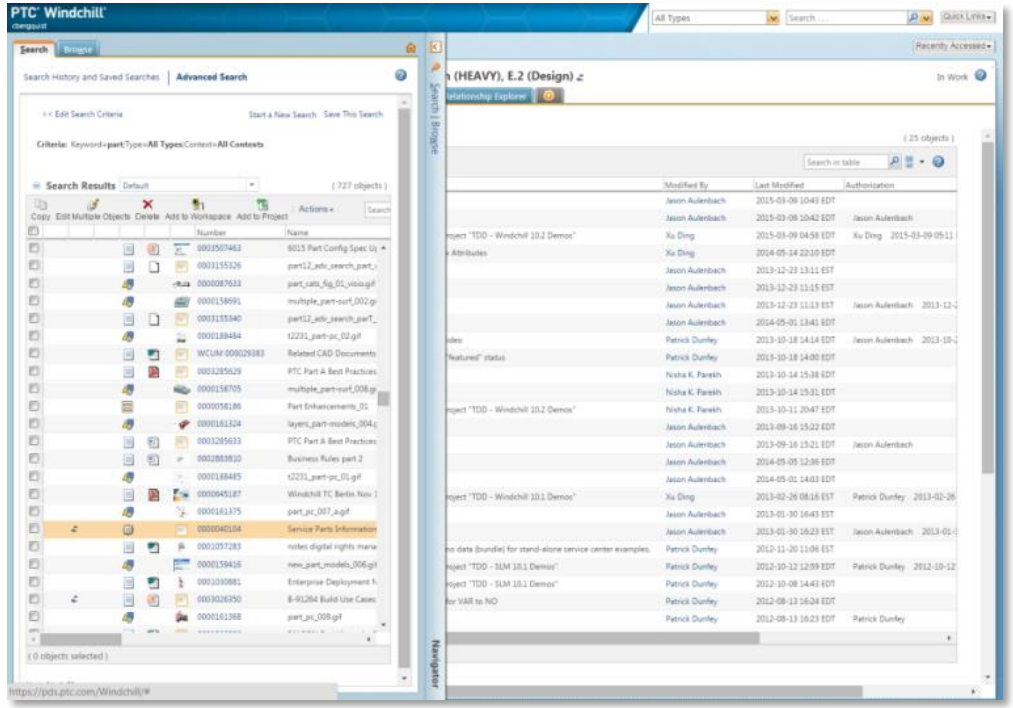
AGENDA

- Introducing ThinkWorx Navigate
- Roadmap: Recent Releases
- Example Partner Apps
- Roadmap: What's Next
- Getting Started

VIDEO 1 GOES HERE

CURRENT SITUATION & CUSTOMER CHALLENGE

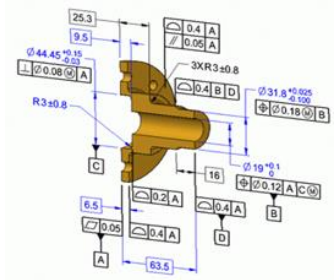
- Enterprise systems are **too complex for many roles** to get information themselves
- Even with in-depth training, infrequent **users forget how to get information**
- A single application **does not include all information needed** by role for a task



Designer/Engineer

Request product info

Tooling Designer



Purchasing Agent

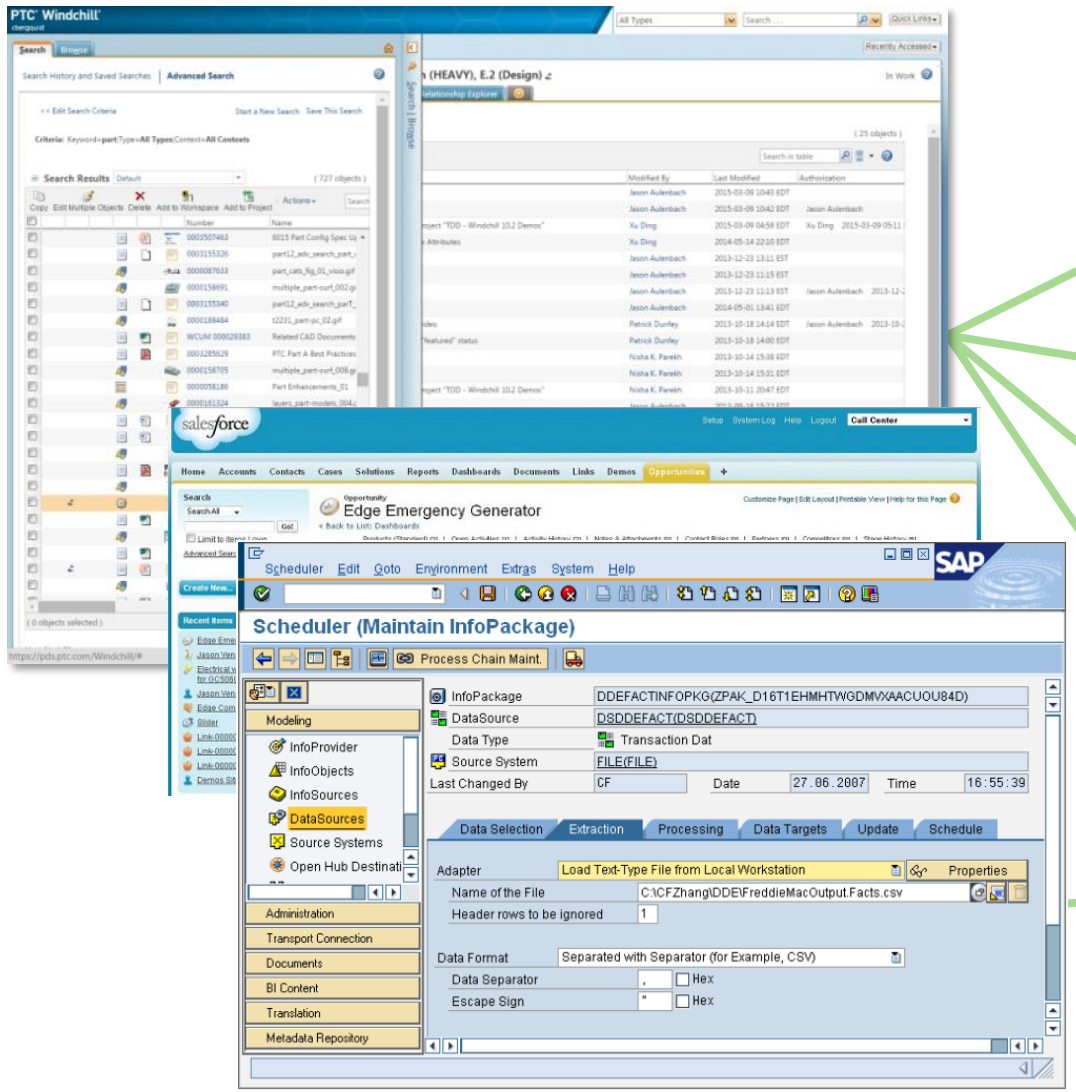
Quality Inspector

Shop Floor Worker

- Expert users become **bottleneck** for getting product information
- Expert users are **distracted and burdened by requests** from many roles
- Enterprise interfaces can be customized but it is **often costly to create and maintain these customizations**

THINGWORX NAVIGATE SOLUTION

Deliver just what is needed in role-based experience for self-serve access to product information by any role



Designer
Engineer

View Drawing

View Design Files

View Document

View Part Structure

ThingWorx Navigate Role-based Apps

Tooling Designer

Purchasing Agent

Quality Inspector

Shop Floor Worker

thingworx® navigate™

ptc

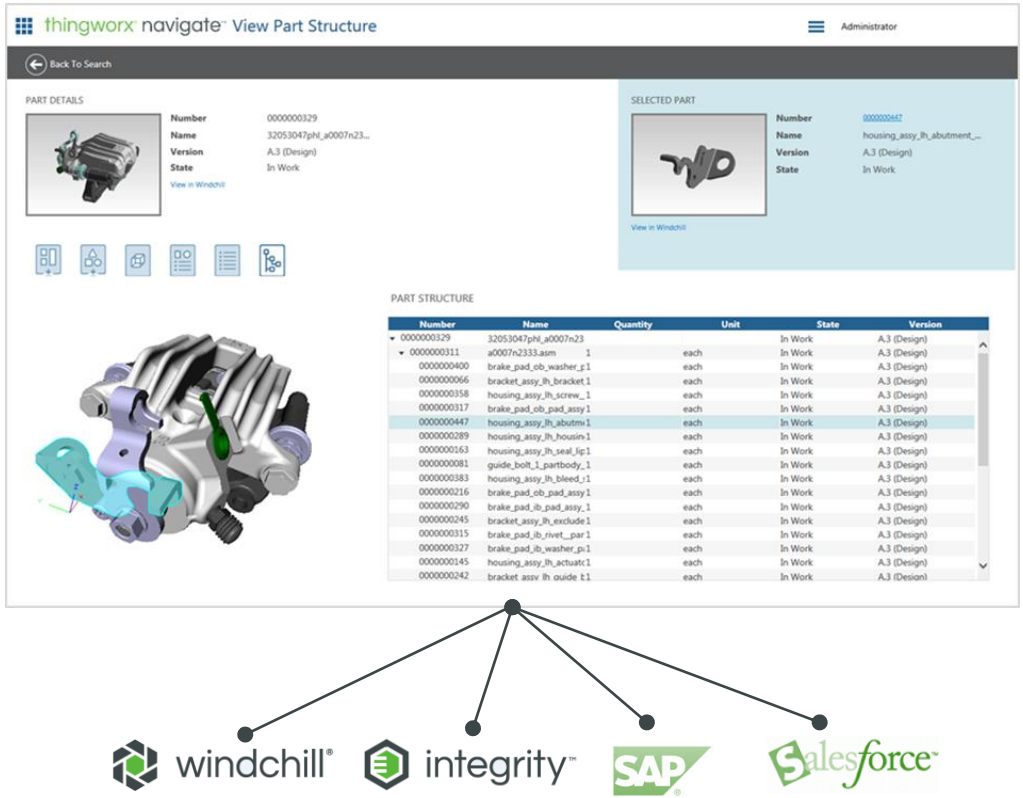
Benefits

- ✓ No Windchill upgrade or system rip and replace
- ✓ Easy to deploy and adopt
- ✓ Ready out of the box
- ✓ Simple tailoring
- ✓ Reduce errors, increase efficiency, reduce costs

Purpose Built	Just the information needed	Easy to consume
✓ For a role… ✓ To complete a task	✓ From all the owning systems ✓ Aggregated together	✓ On the device that is convenient ✓ With no need for training

Production Role

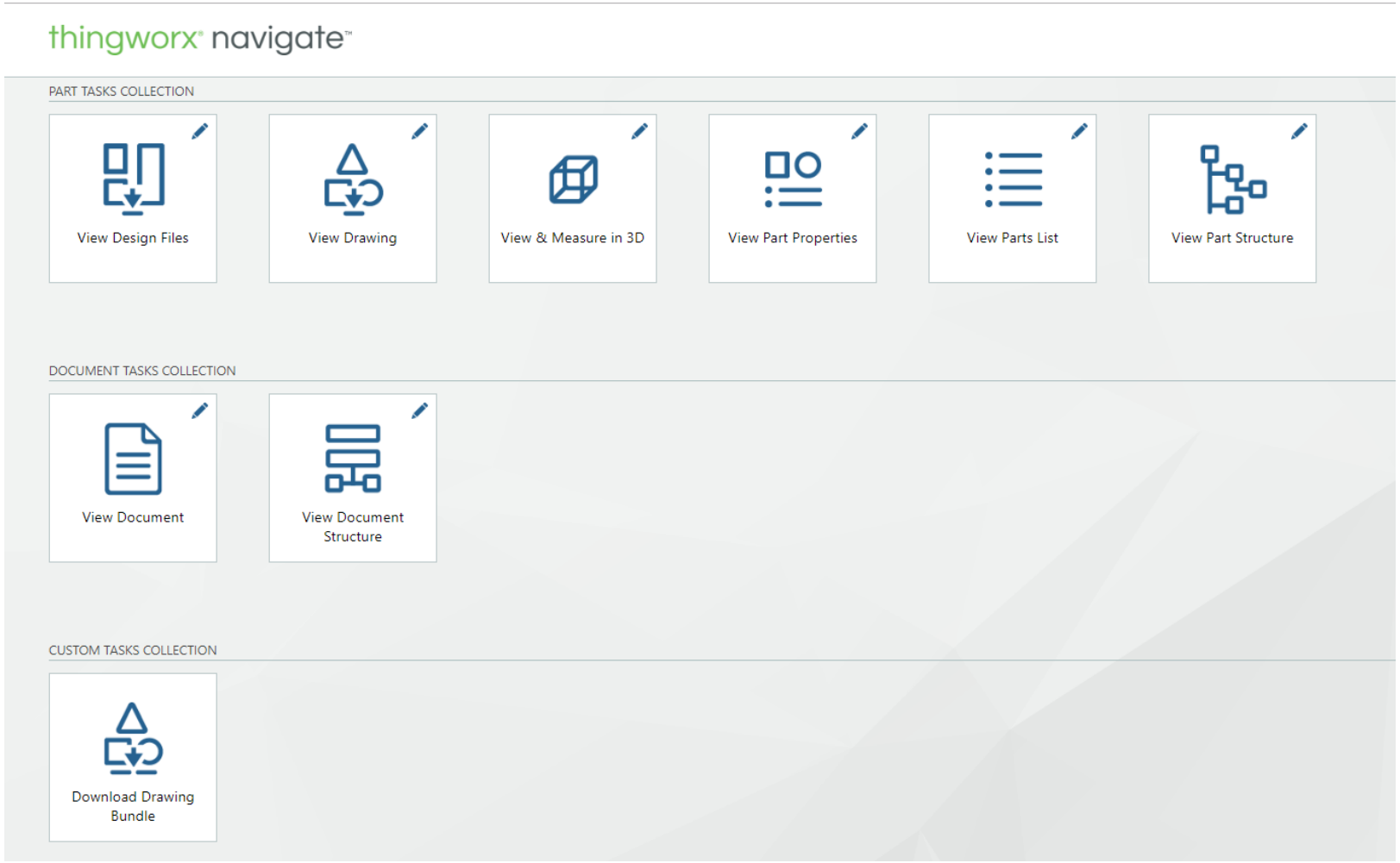
Purchasing Role



THINGWORX NAVIGATE VIEW

Capabilities

- View Drawing
- View & measure in 3-D
- View Part Properties
- View Parts List
- View Part Structure
- View Document
- View Document Structure
- View/Download design files
- Download Drawing Bundle



DEMONSTRATION: VIEW PART STRUCTURE

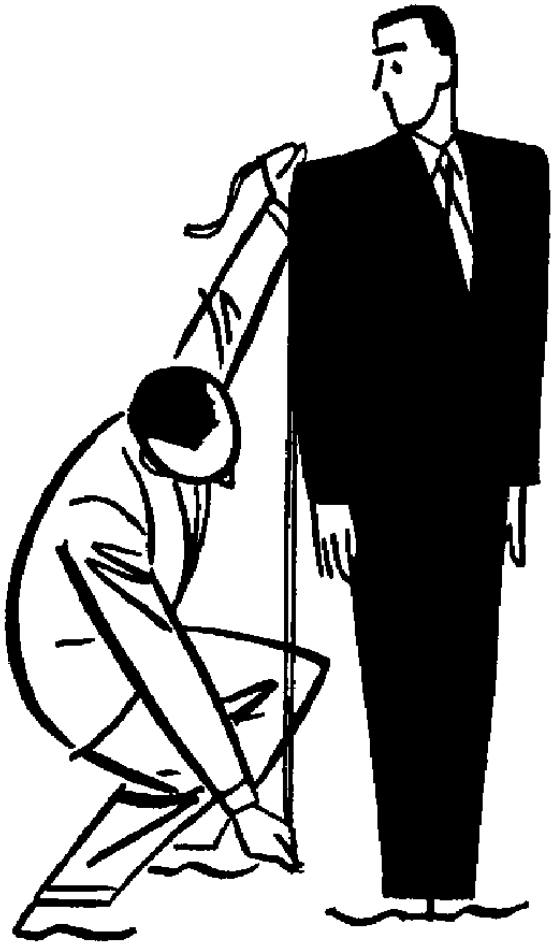
Video 2 Goes Here

DEMONSTRATION: VIEW DRAWING

Video 3 goes here

AGENDA

TAILORING



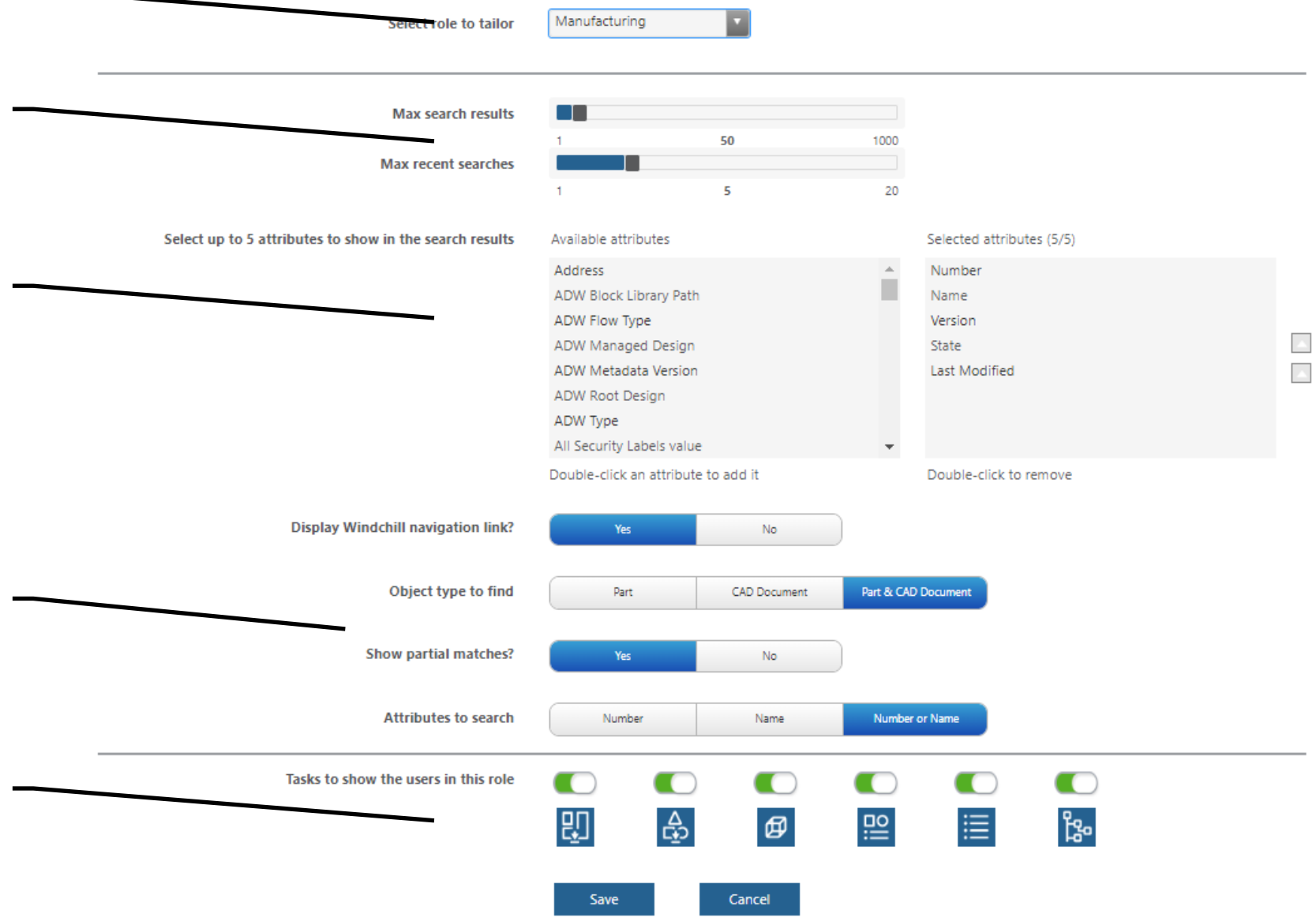
Select role

Set Limits

Choose Attributes

Set Search Options

Choose Tasks



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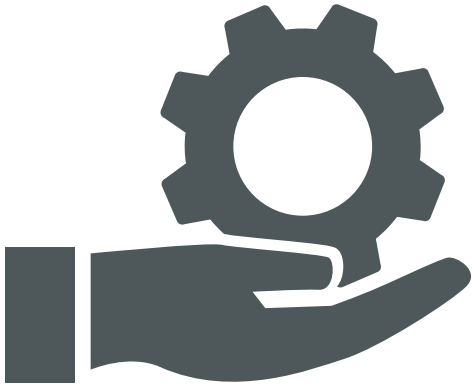
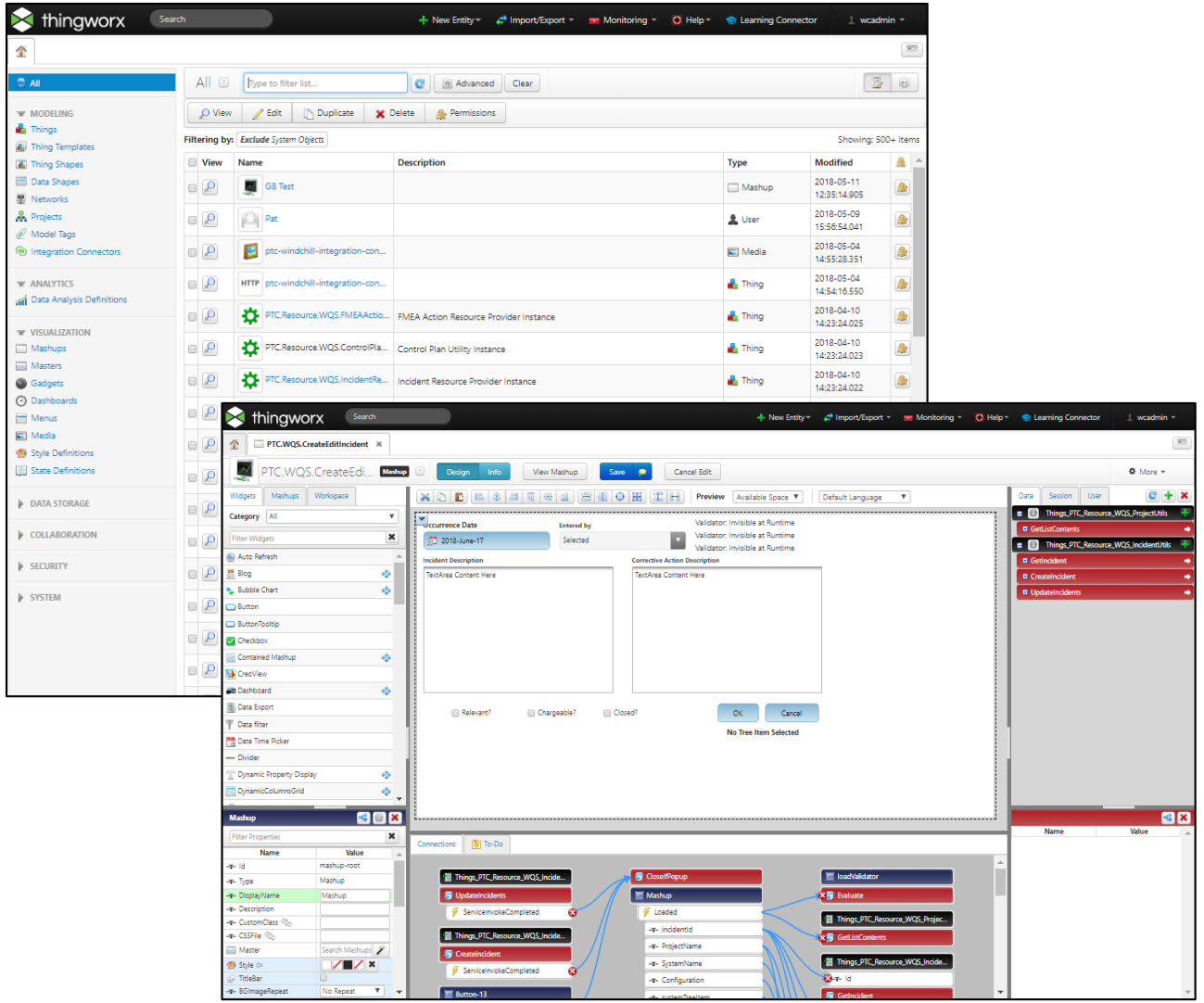
CUSTOMIZING



CUSTOMIZING THINGWORX NAVIGATE

- Navigate ADK
  - View
  - Author
  - Grants Access to ThingWorx platform
    - Composer
    - Mashup builder
- Connectors
  - Windchill
    - REST Easy
    - ODATA
- Extend Existing or Build Completely New Mashups

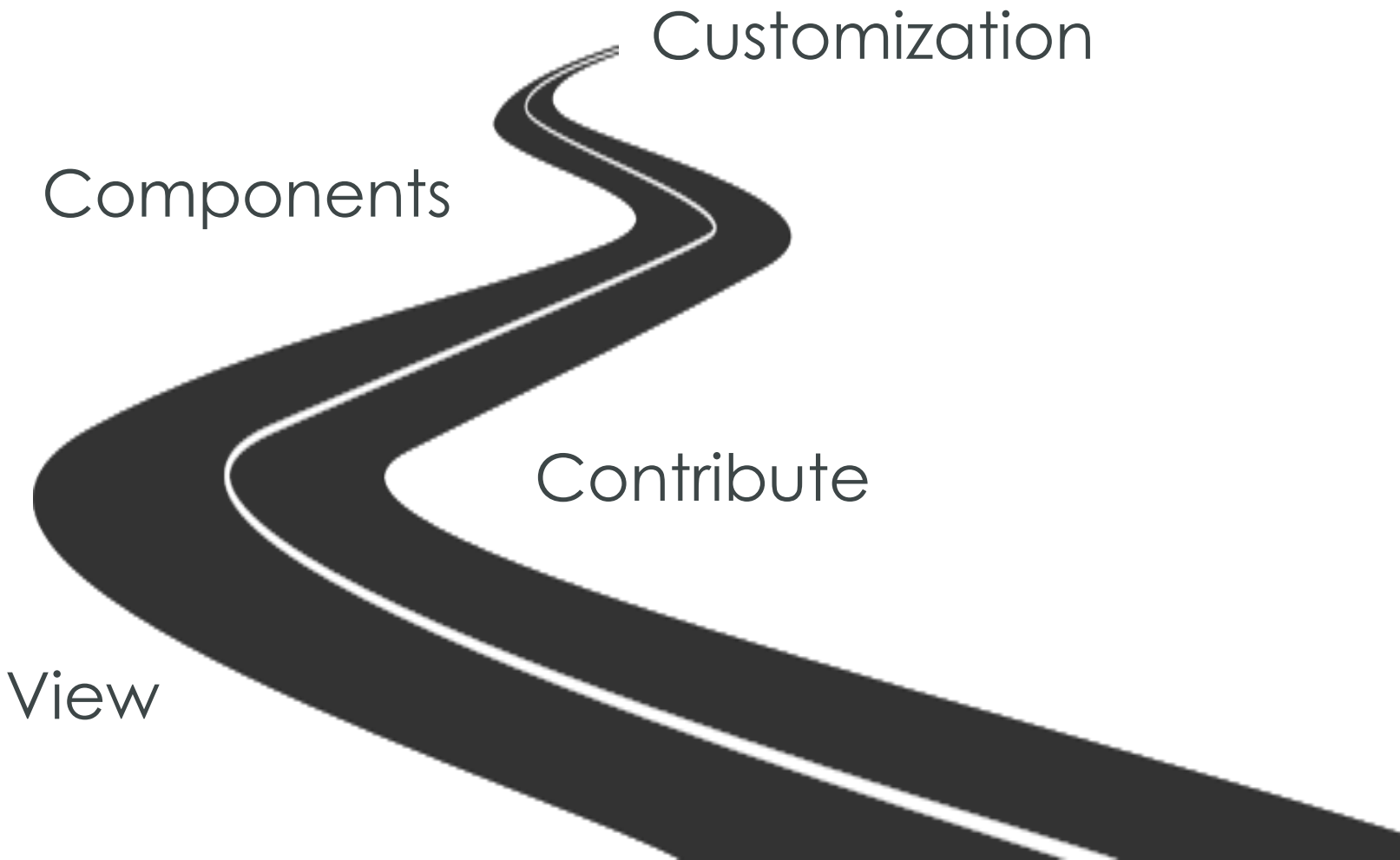


EXAMPLE OF CUSTOMIZATION: POLARIS

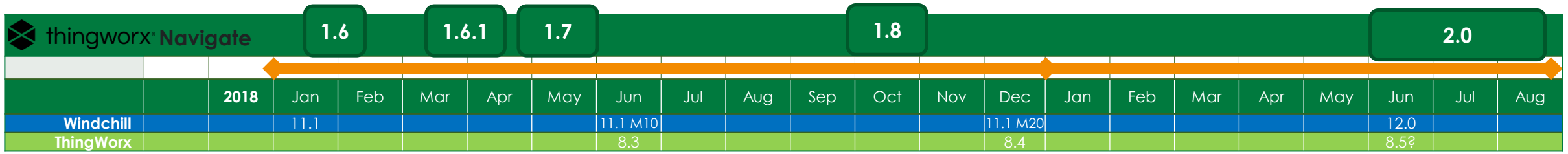
- Video 4 goes here

AGENDA

ROADMAP



THINGWORX NAVIGATE PRIORITIES & ROADMAP



2019 Priorities (Navigate 2.0)

Navigate Contribute

Enable the user to review and respond to assigned Change Request Review & Approval tasks

Navigate ADK

Introduce Rapid App Development through Component Based Construction

Navigate Installer

Enable upgrade of an existing Navigate installation

2019+

Navigate Apps

Additional Navigate Contribute Apps
(Problem Report/non-conformance, document Management)
Update to existing View Apps

Navigate ADK

Enhance Rapid App Development with introduction of additional components

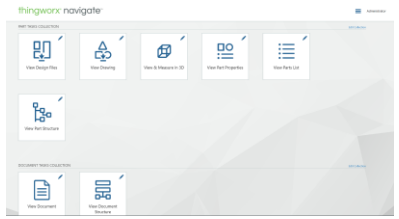
Multi-System

Replace multi-system connectivity with ThingWorx orchestrate

The information in these slides regarding possible future releases is not intended to be part of any commercial offer and is provided solely for informational purposes. Such information does not in any way constitute commitments, promises or legal obligations upon which customers may or should rely. The development, release and timing of any features or functionality described for PTC products remains subject to change at any time at PTC's sole discretion. In no event shall PTC be liable to customers for failure to adhere to any such roadmap and/or to produce or deliver any functionality described in these slides. A customer's decision to purchase any PTC software products must in all cases be based upon the current functionality of the relevant products and not upon any potential future functionality and/or features described in the product roadmap.

THINGWORX NAVIGATE – RELEASES & ROADMAP OUTLINE

View – *1.5 June 26, 2017*



- ThingWorx 8.0 support
- License Management (Named User)
- 3-D WebGL Viewer
- Single signon (SSO)
- View/navigate document structures
- Download all drawings/files for assembly
- New integration framework & SAP connector

View –*1.6 January 2018*

- Authentication options (SSO/non-SSO)
- Performance
- In-place upgrade
- Export to spreadsheet
- Usability and styling improvements
- ADU License management
- Support for MSSQL database

View – *1.7 April 2018*

- ThingWorx Platform Update
  - ThingWorx 8.2

View – *1.8 Oct. 2018*

- Focus on User Experience
  - Installability
  - Upgradability
  - Maintainability
  - Usability

View/Contribute – *Mid'19*

- Contribute App
  - Review & approve Change Request
- Continue User Experience
  - Upgradability
  - Usability

View/Contribute – *2019+*

- Markup
- Attach/edit document
- Create problem Report
- Complete general task
- Create deviation/waiver/nonconformance
- Navigate Portal Service (SaaS)
- View Where Used

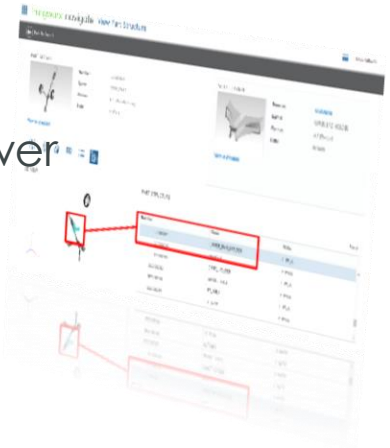
Forward looking information subject to change without notice – November, 2018

THINGWORX NAVIGATE 1.8 – THE "ILITIES" RELEASE

- **"Installability"**
  - Provide a seamless experience for ThingWorx & ThingWorx Navigate installation
    - Single download for Navigate install
    - Deploy ThingWorx platform & ThingWorx Navigate along with underlying technologies (Tomcat, etc.)
    - Validate Windchill connection during installation
    - Improved Documentation
- **Upgrability**
  - Upgrade preparation tools (API changes detection script)
  - Support Migrate

- **Compatability**
  - Windchill 11.1 M010, 11.1 F000, 11.0 M030
  - ThingWorx 8.3.3

- **Maintainability**
  - Custom Navigate Banner
  - Making ThingWorx & Windchill better together
    - Windchill Clustering
    - Connecting to Multiple WC Systems
  - Support I*E from ODATA connector
- **Usability**
  - Improved Product Documentation
  - Search performance improvements
  - Improved List Shuttle Widget
  - Cross selection highlight Tree Structure & WebGL Viewer



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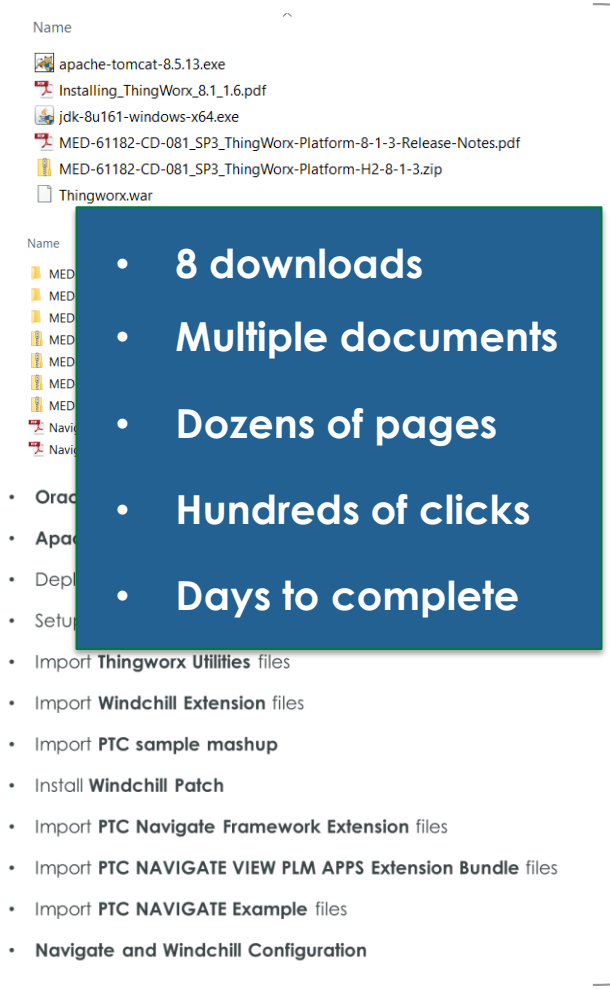
PRODUCT INSTALLER

- Fresh installs only in 1.8
  - Upgrades planned for 2.0
- Required components are pre-packaged & auto deployed
  - Exact versions will be pre-packaged
  - No need to search for multiple downloads
- Installs ThingWorx & Navigate
  - Tomcat server automatically installed
- Configure connection to Windchill
  - Fixed Authentication, Windchill Authentication, Single Sign On via connection to PingFederate
  - Realtime connection validation for quick troubleshooting

From This



- 8 downloads
- Multiple documents
- Dozens of pages
- Hundreds of clicks
- Days to complete

To This

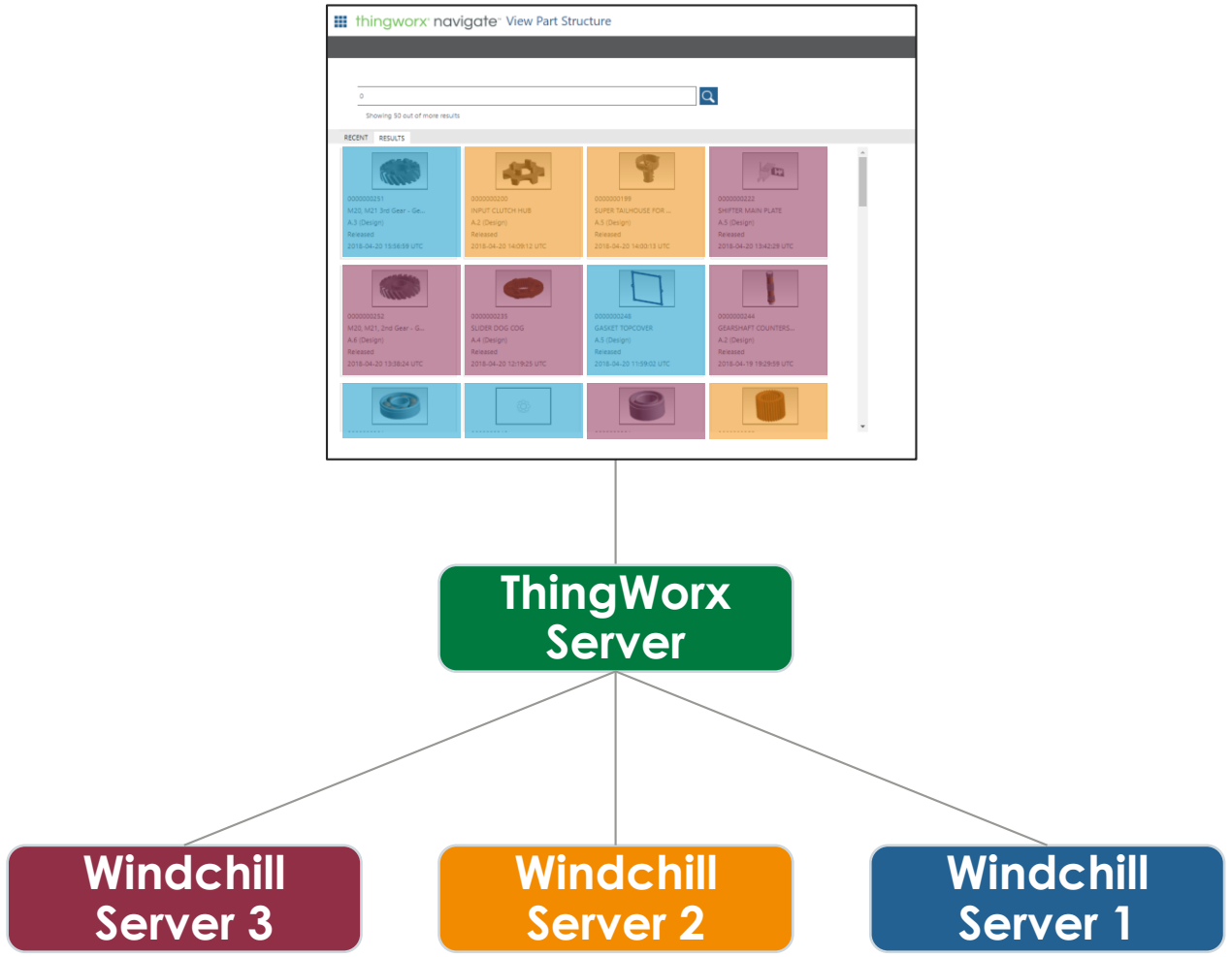
Download

Install

1 Hour to complete

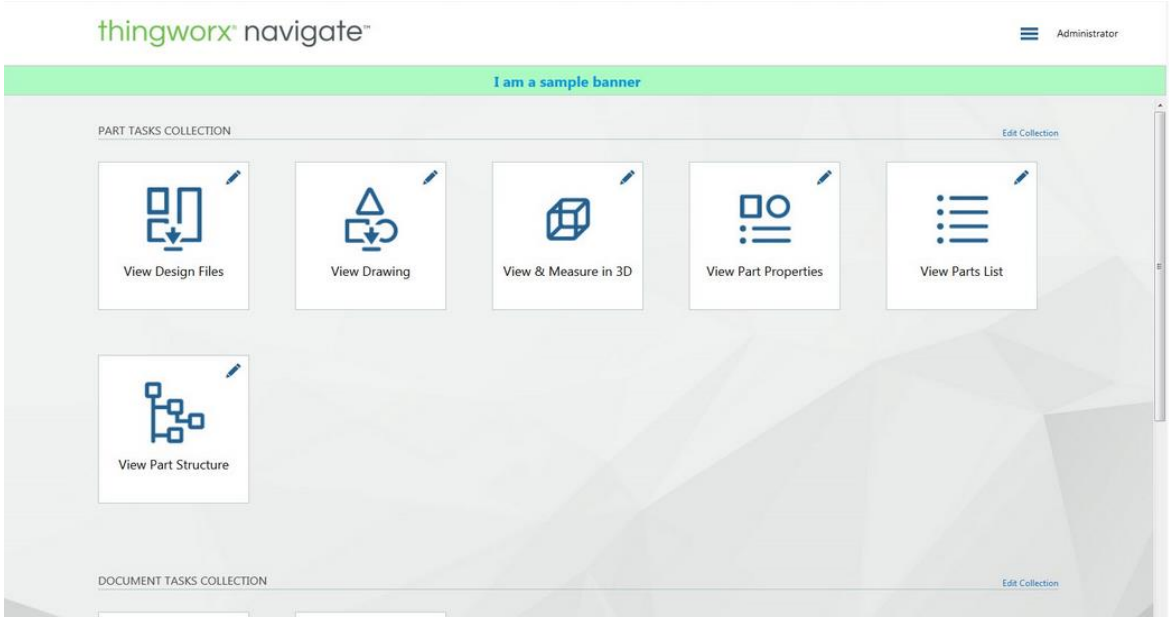
NAVIGATE 1.8: MULTI-WINDCHILL ORCHESTRATION

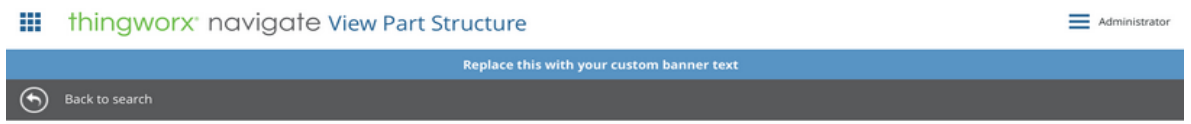
- The customer configures one or more Windchill servers.
- When the user initiates a search from one of the View Apps the search is executed against all systems simultaneously
- The search results are assembled on the TWX server & presented back to the user.
- Search results will indicate which server that result came from
- When the user selects one of the search results that request goes directly to the specific server
- Download Drawing bundle is not supported.

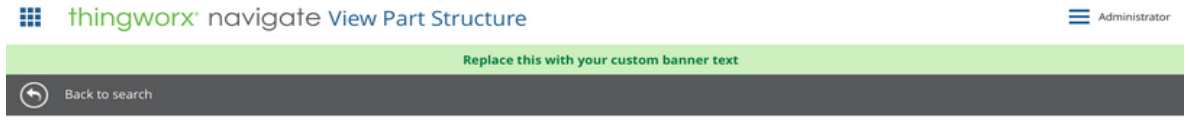


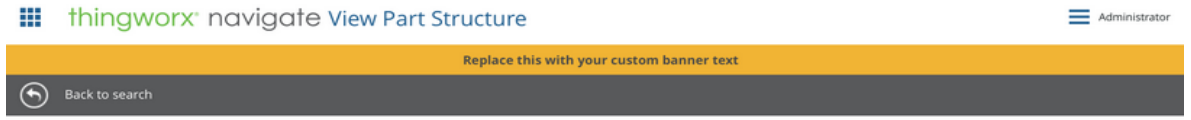
CUSTOM NAVIGATE BANNER

- Ability to plug in a custom banner
- Supported on all Navigate UIs
- Upgrade-safe
- Easily add/remove/change banner
- Sample banner is included









AGENDA

PARTNER EXAMPLES

ANARK®

FACTON
INNOVATIVE COST MANAGEMENT

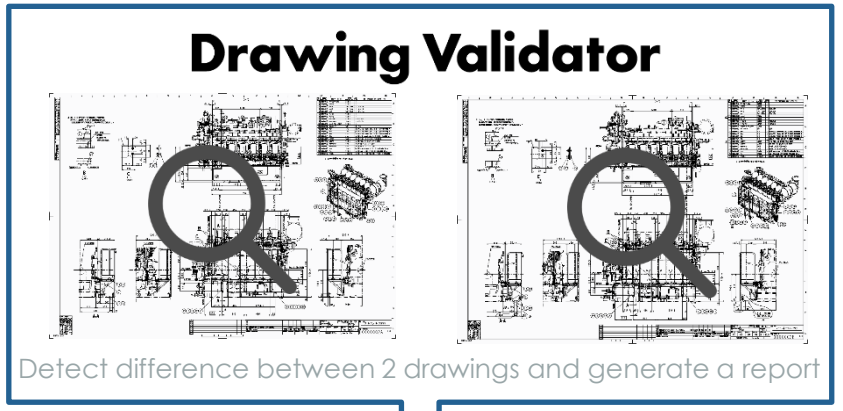
ELYSIUM

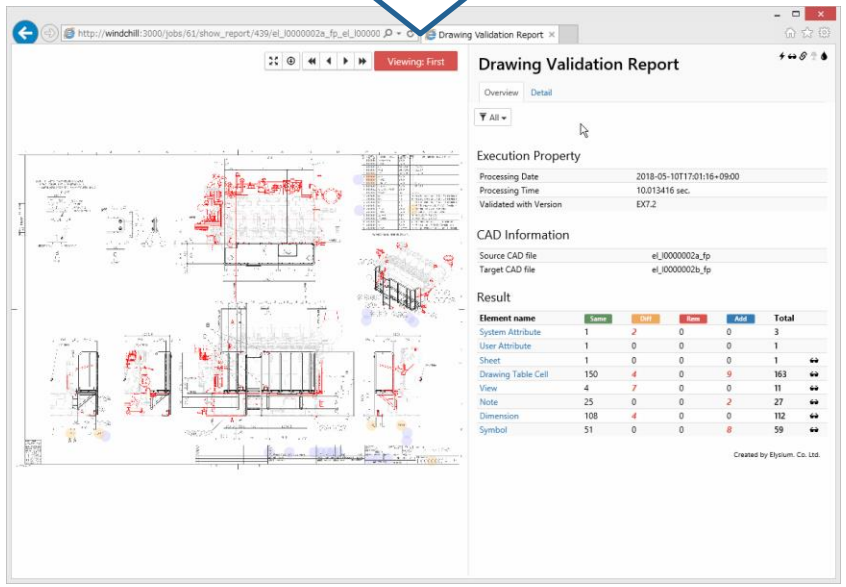
ELYSIUM DRAWING VALIDATOR

Kentaro Fukuta

Capture engineering changes efficiently and eliminate chance of oversight

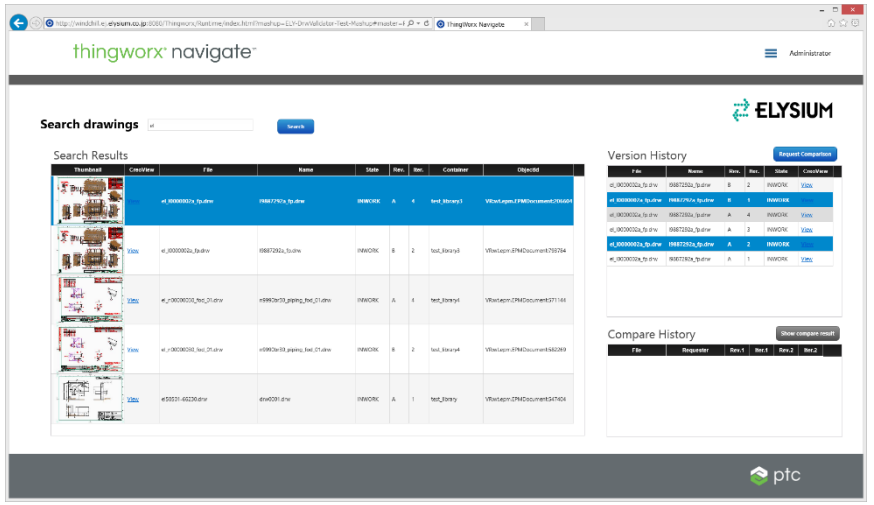
- ✓ Validation based on semantic/graphic information from native CAD Models
- ✓ User-friendly report
- ✓ HTML reports viewable on Web browsers



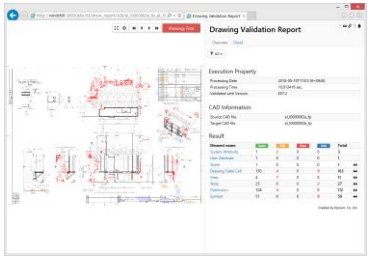


DRAWING VALIDATOR ON THINGWORX NAVIGATE

ThingWorx Navigate mashup to search drawing data managed on Windchill and launch Drawing Validator



Drawing Validator on ThingWorx Navigate



Drawing Validation Report

Video 5 goes here

THE MARKET LEADER IN ENTERPRISE PRODUCT COSTING (EPC)

Mike Betz

FACTON Enterprise Product Costing

- FACTON EPC – an enterprise standard software which enables producers of complex products to calculate product costs across the organization, both on premise and in the cloud
- Focus industries of FACTON are automotive, aerospace, mechanical engeneering and electronics. Global footprint with more than 100 customers like Ford, JaguarLandRover, Siemens, Airbus, TE Connectivity, Mahle Behr and Dyson

Facts and Figures

Founded:	1998
Global HQ:	Potsdam, Germany
North America HQ	Troy, MI
Employees:	~90
Software Development:	Germany
Customers:	> 100
Partners:	> 15
Main Investor:	Hasso Plattner

FACTON Trade Secret & Copyright, for authorized use only

www.facton.com

Video 6 goes here

ANARK CORPORATION OVERVIEW

Leading provider of automated technical content publishing and **visual collaboration** software and solutions

Empowering the MBE and Digital Thread revolution within Aerospace, Defense, Automotive, Energy, Industrial, Electronics, and Medical Equipment Sectors

Enables manufacturers to easily transform critical PLM & ERP data into powerful, role-and-use-case-specific 3D PDF documents and HTML5 web content that can be consumed on virtually any device

Long-standing PTC partner with strong shared customer base of Windchill, Creo, & ThingWorx users

Anark Corporation HQ in Boulder, Colorado, with offices in the Detroit, Washington DC, San Francisco, and Bangalore, India

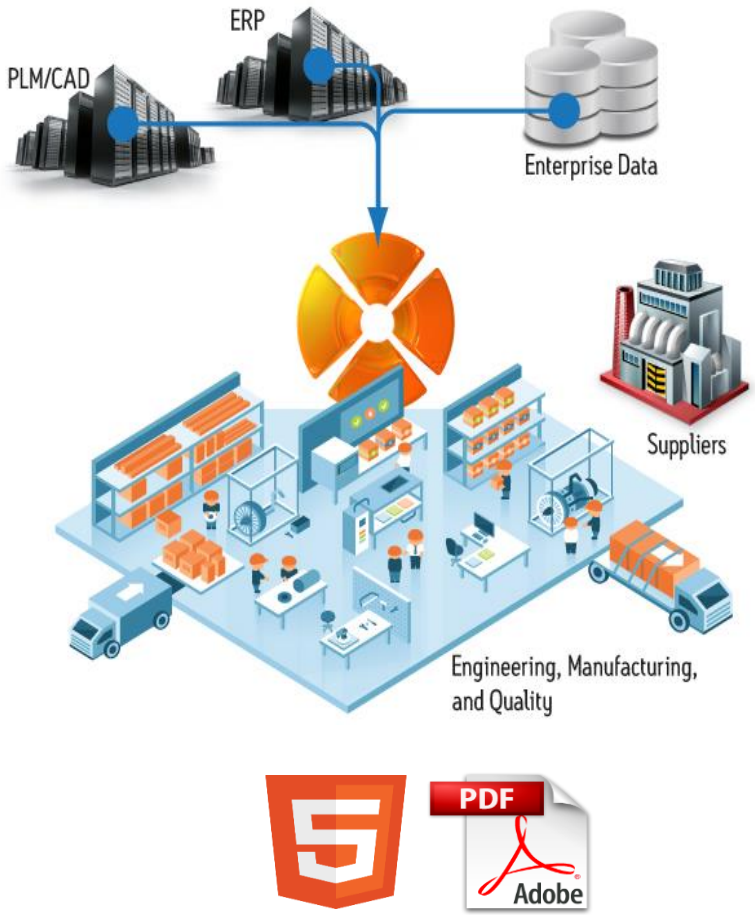
Stephen Collins

Connecting The Digital Thread

ANARK CORE & MBEWEB – CONNECTING THE DIGITAL THREAD

ptc

- Enable manufacturers to easily transform critical PLM & ERP data into powerful, role-and-use-case-specific 3D PDF documents and HTML5 web content that can be consumed on virtually any device
- Empower knowledge workers along the Digital-Thread to communicate and collaborate more effectively and securely throughout engineering, manufacturing, supply-chain and field service operations.
- Support powerful model-based enterprise (MBE) process change, yielding higher quality products, accelerated release cycles, and reduced scrap and material waste, netting substantial cost savings for OEMs and their suppliers.



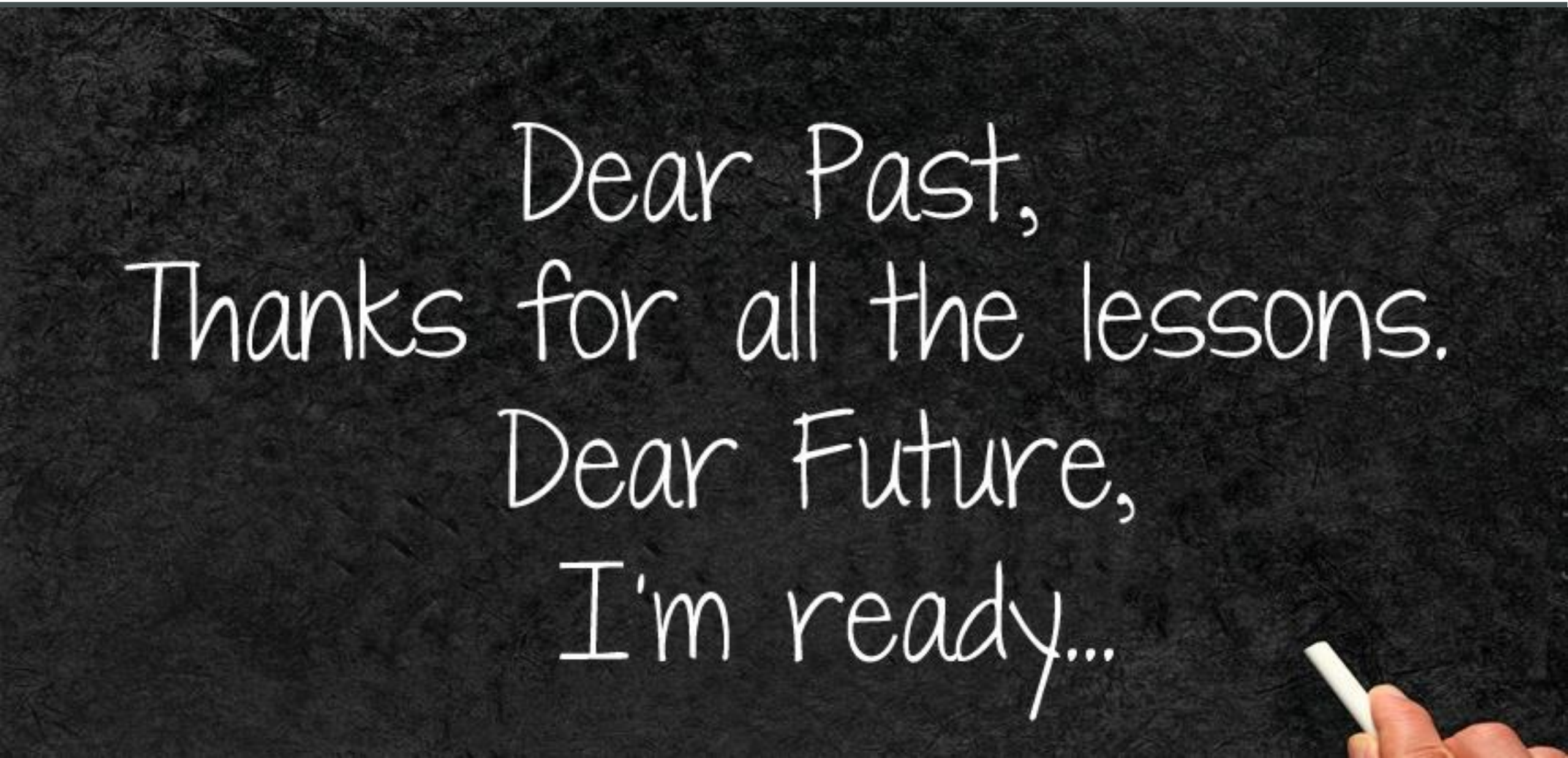
ANARK

Connecting The Digital Thread

creo® windchill® thingworx®

Video 7 goes here

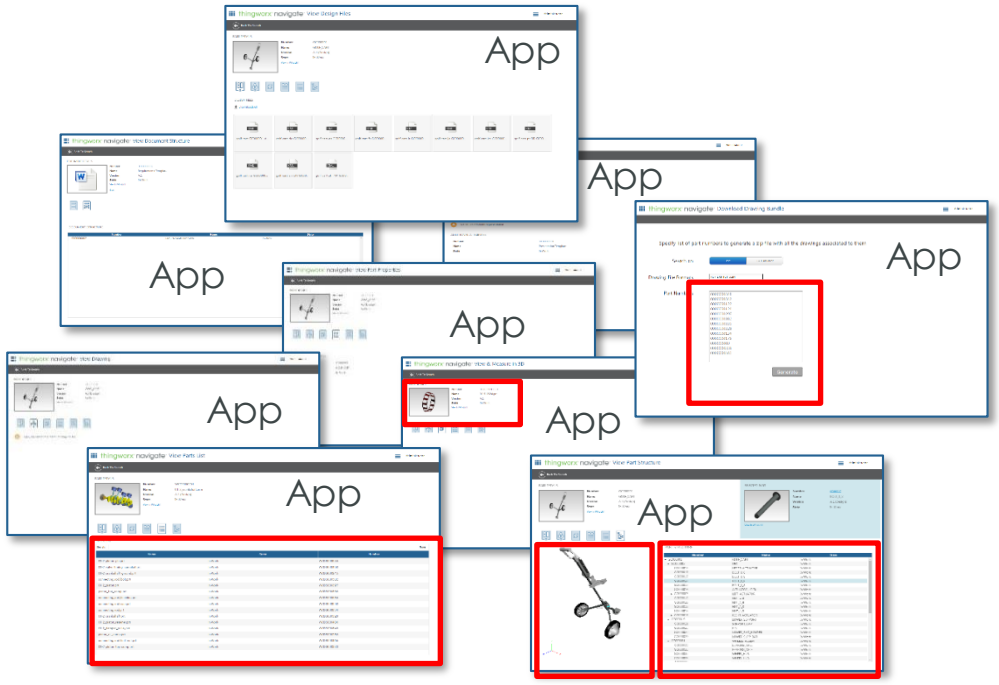
FUTURE: NAVIGATE 2.0



NAVIGATE 2.0 VISION

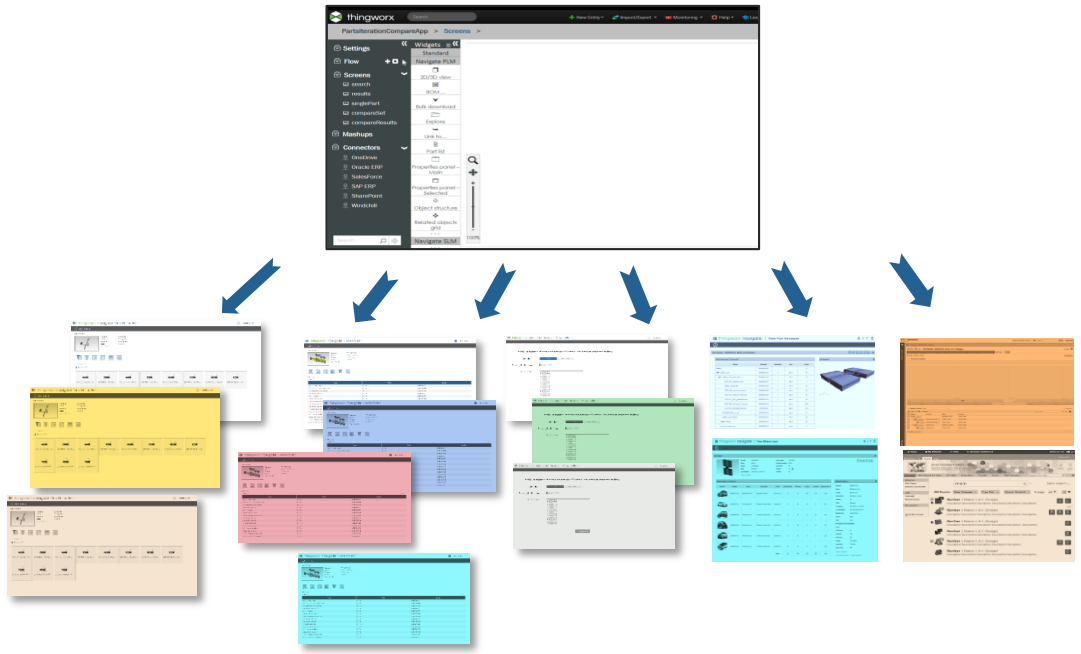
Current Navigate

A set of OOTB task-based, role-based PLM tasks to answer a specific need.



Future Navigate

App builder - solution to build role-based apps that meet a wide variety of end user needs



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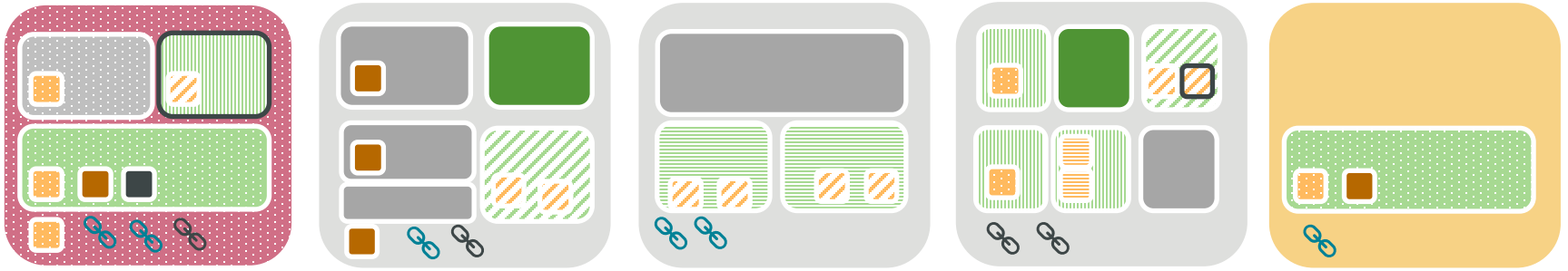
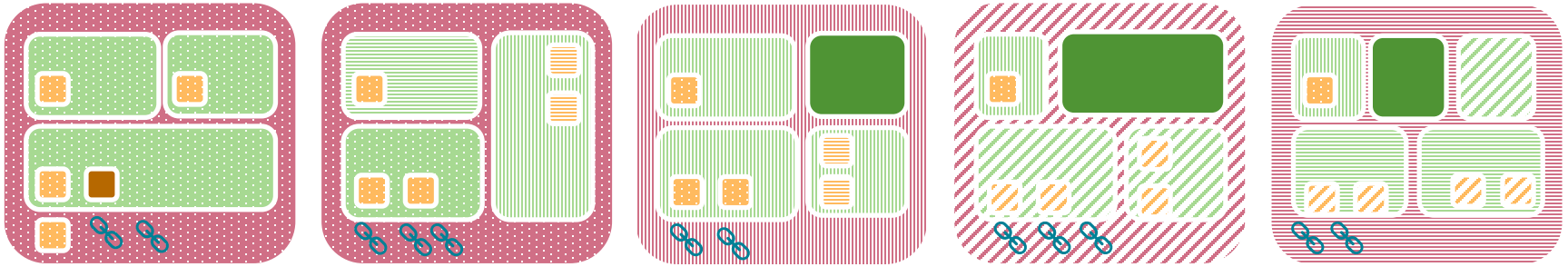
Customers apps

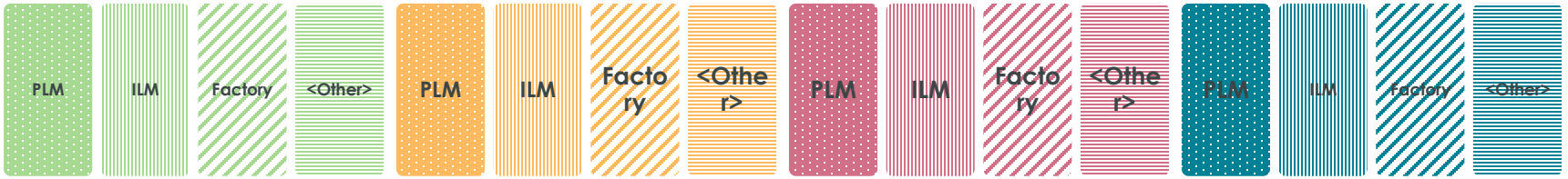
- Customized PTC apps
- Standalone apps
- Embedded apps



PTC Apps



Domain specific Components



Generic Components

Packaged components

Services

Templates

Connectors

PTC design system

Design system library

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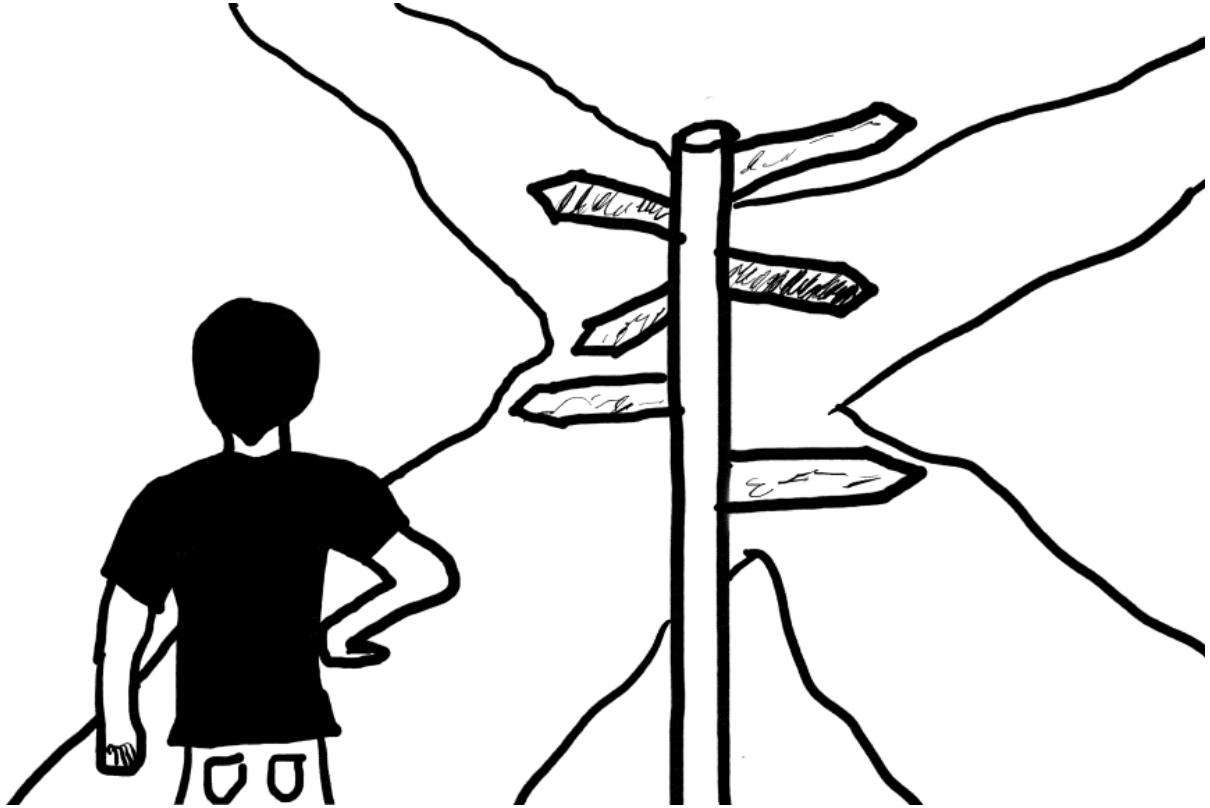
AGENDA

GETTING STARTED WITH **THINGWORX NAVIGATE**



BASIC LEARNING PATH

Navigate Basic Learning Path

- **Applies To:**
  - Customers looking to install and leverage the apps as they come out of the box
- **Key Concepts**:
  - Installation
  - Configuration/Tailoring
- **Recommended Documentation:**
  - ThingWorx Navigate Installation and Configuration Guide
  - Platform Support Matrix for ThingWorx Navigate
- **Recommended eLearning:**
  - PTC Navigate Install and Configure 1.X
    - Good "overview" type of material covering the installation
  - Introduction to ThingWorx Navigate 1.X apps
    - Describes what each Nav app does
  - Business Administration of ThingWorx Navigate
    - Covers basic tailoring options for each Navigate app
- **Recommended Expert Sessions**
  - ThingWorx Installation
  - Overview of PTC Navigate View PLM App Extension
  - Functionality and Tailoring in ThingWorx Navigate

ADVANCED LEARNING PATH

Navigate Advanced Learning Path

- **Applies To:**
  - Customers who own the Navigate App Development Kit
- **Key Concepts**:
  - Installation
  - Configuration/Tailoring
  - Customization
- **Recommended Documentation:**
  - All from Basic Path
  - API documentation found in the Windchill PDMLink "Customization" tab
- **Recommended eLearning:**
  - All from Basic Path
  - Fundamentals of IoT Development with ThingWorx (IoTU)
    - Walks through the fundamentals of mashup creation/manipulation and overall app creation
  - ThingWorx Platform Administration (PLMS)
    - Covers ThingWorx admin topics such as users, groups, and other administrative tools
- **Recommended Expert Sessions:**
  - All from Basic Path
  - Overview of ThingModel
- **Recommended ILT Training**:
  - Introduction to ThingWorx
  - Building Custom Integrations w/ PTC Navigate (if Use Case aligns)
  - IoT Modeling with ThingWorx
  - IoT UI Development with ThingWorx

ADDITIONAL RESOURCES

- **ThingWorx Help Center**
  - Fantastic resource for all things ThingWorx including REST API, extensibility information, and additional API documentation
- **Windchill Help Center**
  - Resource for all things Windchill including ODATA REST, Info*Engine and other Windchill PLM specific information
- **Navigate Help Center**
  - Resource for all things Navigate including mashup, configuration, customization, extension, and connector information
- **PTC eSupport Portal**
  - Great place to go if you are having an issue. Check here to see if what you are experiencing is a known problem/bug
- **ThingWorx Developer Community**
  - Both PTC experts and customers come together to discuss application creation, technical issues, and general questions!
- **ThingWorx/Navigate eLearning**
  - PTC standard training materials. Sometimes revisiting your original training documents can get you moving again!
- **IOTU**
  - The next generation of training material from PTC!

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