

Walk-in Slide: AU 2014 Social Media Feed

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<http://aucache.autodesk.com/social/visualization.html>

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Authentic BIM collaboration using a Private Cloud and Virtual Workstations CM5549

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Introduction

- Ed Lick
 - STV Incorporated, IT Director, AEC Solutions Support Manager
- Chris Bradt
 - STV Incorporated, AEC Solutions Support
- Matt Dierolf
 - STV Incorporated, IT Manager, Network Systems



Class summary

Lecture, Skill Level: Advanced

- This lecture will illustrate how a private cloud reverses the traditional collaboration paradigms by bringing people to the data. Learn how elegantly it solves collaboration, while respecting Revit's work share schema, without synchronization or caching voodoo. Both internal and external team members are able to virtually work “side-by-side” in real time, remotely, from anywhere, on any device all accessing a single set of project data. We will share successes and expose challenges of a private cloud implementation. Key talking points will be software, hardware, licensing, workflows & administration of virtual desktops as well as other challenges with training and performance tuning.

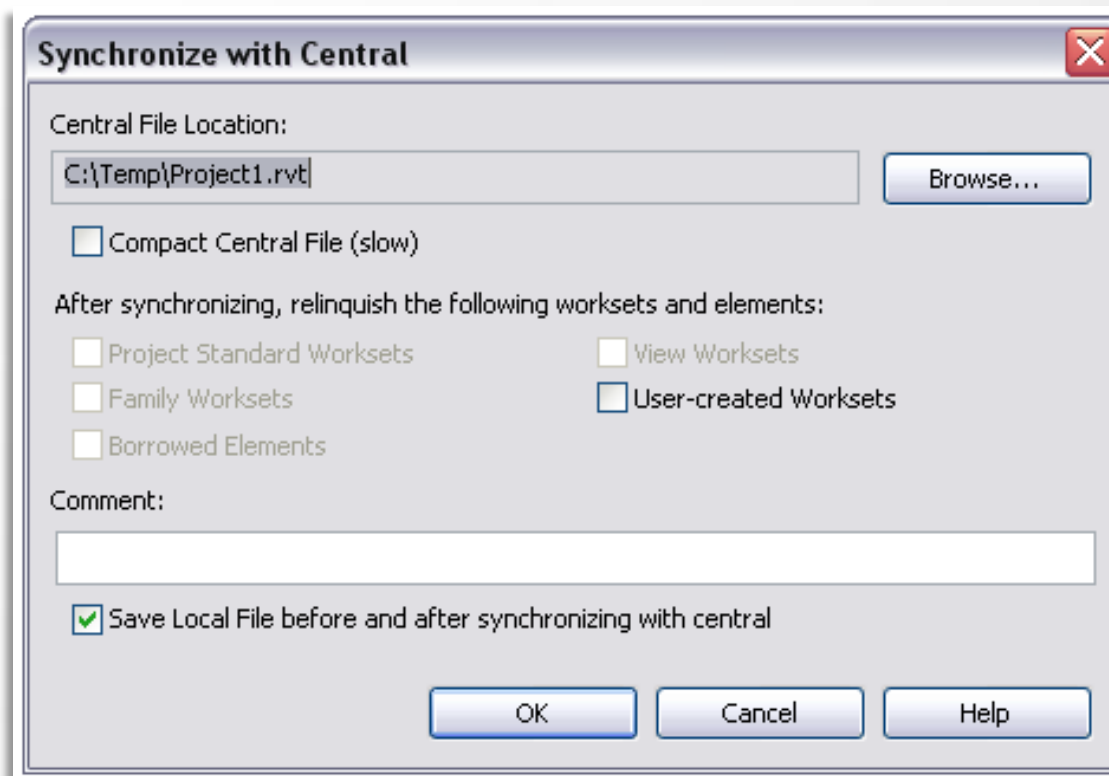
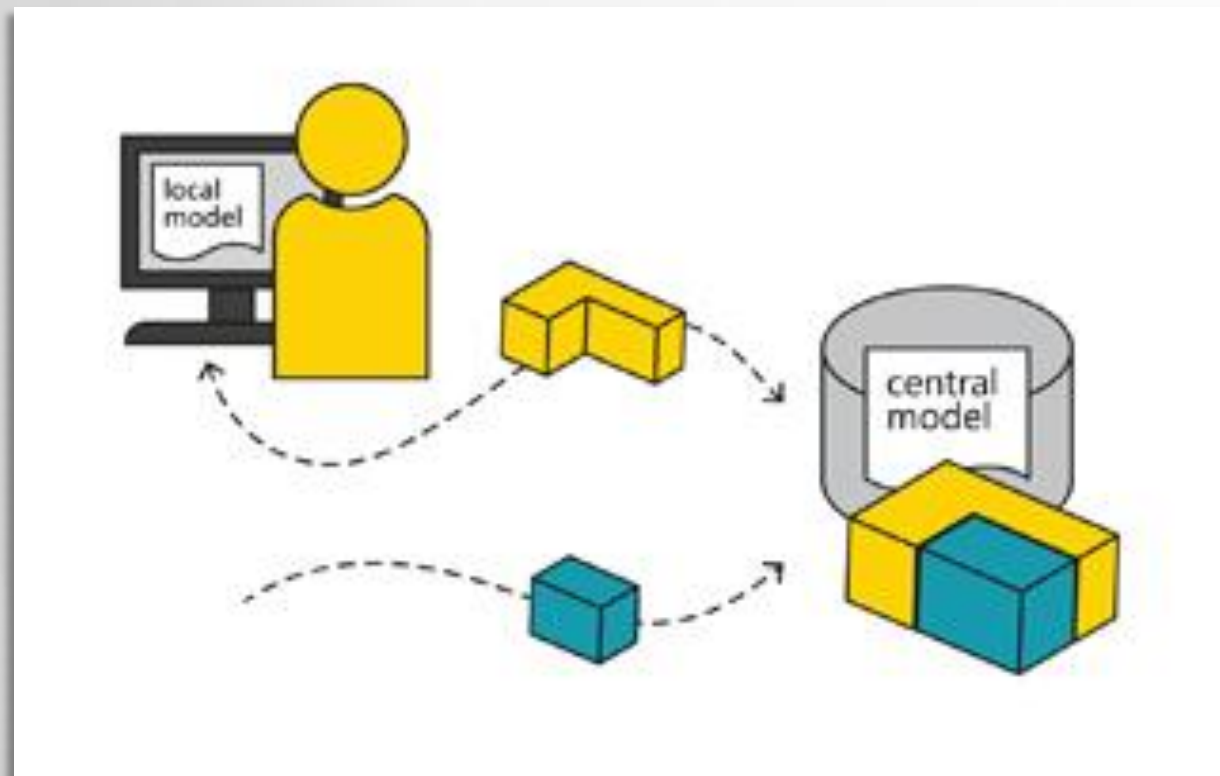
Key learning objectives

At the end of this class, you will be able to:

- Describe key components to a Private Cloud
- Understand how a Private cloud and Virtual Workstations provide a platform for authentic BIM (Revit) collaboration
- Recognize best practices, benefits and challenges for managing a private cloud
- Consider developing an ROI and implementation strategy for your firm

Terms and Definitions

- Private Cloud = VDI = Virtual Environment
- Cloud Workstation = Virtual Desktop
- Revit Workshare Schema - Central Files



Brief history and overview

History

- The business required (BIM) collaboration
- Relied on WAN (ineffective)
 - Buzzsaw, ProjectWise, Revit Server, WAN Accelerators...
- No solution honored Revit's native collaboration schema
 - Central Files
 - Worksets
 - Workshare Monitoring
 - Linked files

Overview

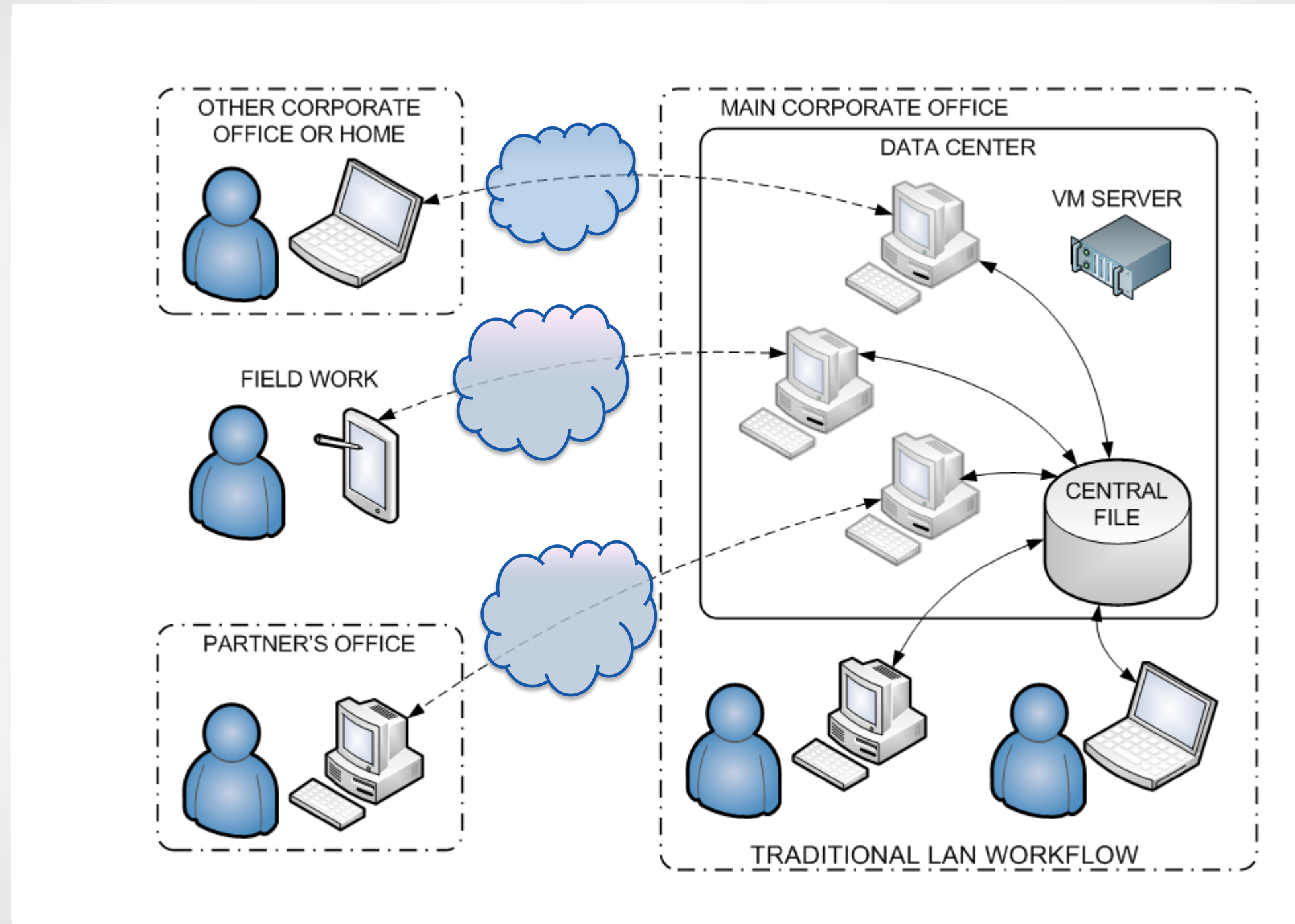
- STV Corporate landscape
 - 35 offices
 - Divisions split between them
 - Resources - Billable
- Proof of concept (Boston/Douglassville)
 - It worked!
 - (Boston/NY)
- Adoption (reliance) by business

Key components of a private cloud

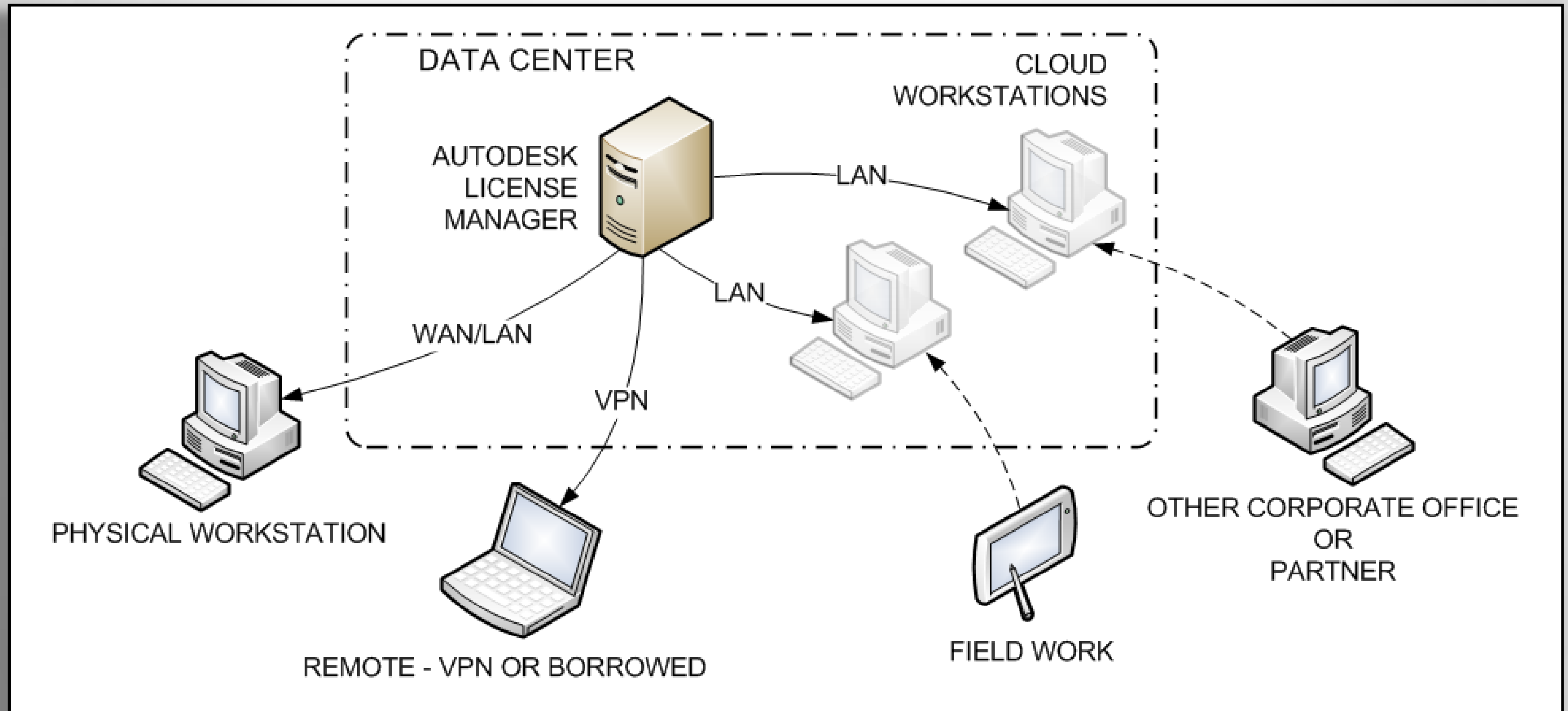
Components

- WAN
- Storage
- Servers
 - Dell, Grid
- Workstations
- Software
 - Vmware Horizon View
- Licensing
- Permissions
- Printing

Private Cloud Diagram



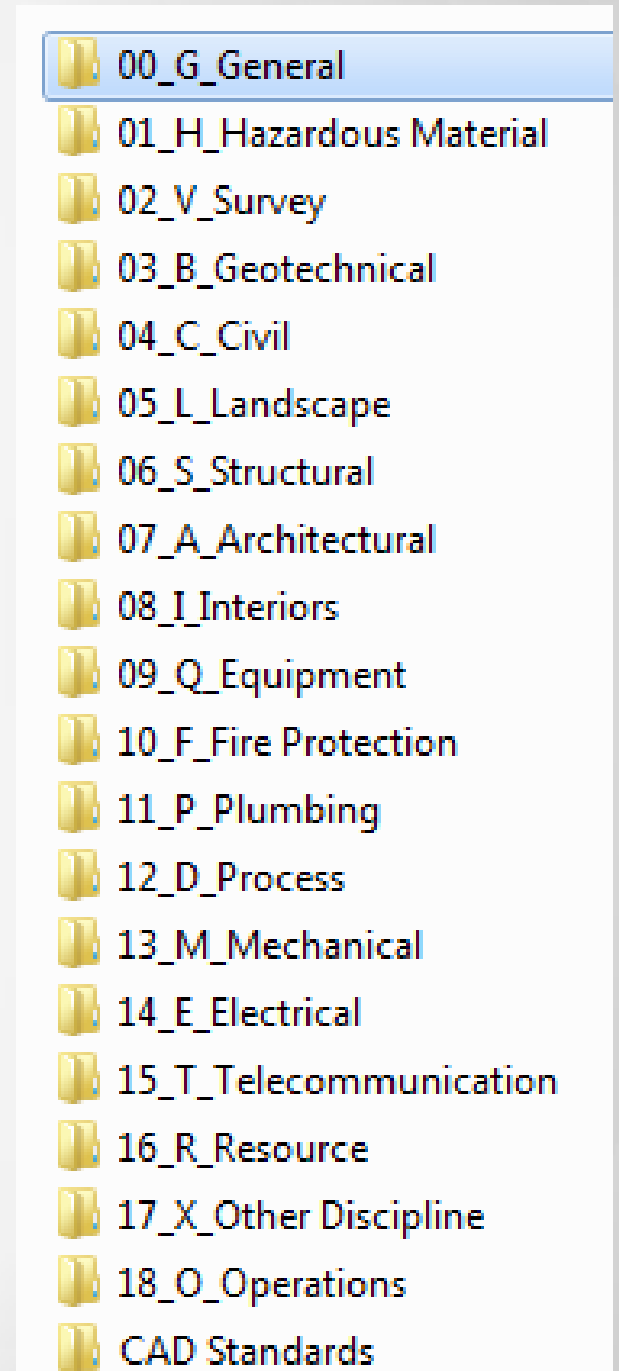
Software Licensing (Autodesk)



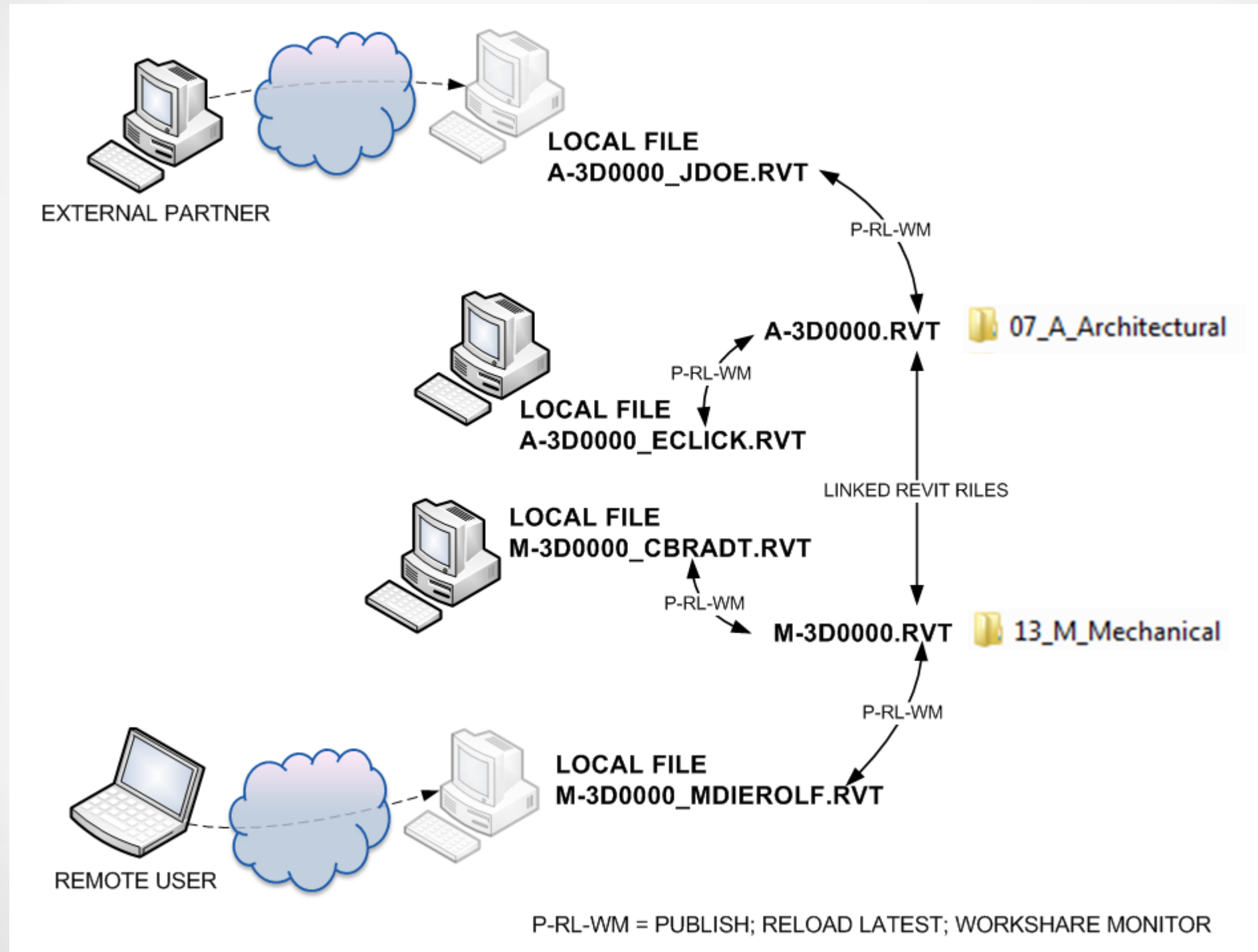
How the private cloud facilitates authentic collaboration

Cloud Storage, Access, Project Directories, Revit

- Single repository of project files
- Project Directory
- Access to project files
 - Active Directory
 - Internal and External
 - PDMM
- Revit proprietary collaboration schema
 - Central Files
 - Links



Cloud Access, Project Directories, Revit Files



Managing the Private Cloud

Key components

- Hardware
- User Access
- Software
- Licensing

The Virtual Environment

- Server
- Capacity
- Cloud Workstations
- Benefits
- Challenges

Our Solution

- VMware proven for server and EUC virtualization
 - Proven in our environment since 2008
 - High performance user experience with Horizon View and PCoIP
- GRID has enabled a truly collaborative and mobile workflow for STV's project workforce with better performance and increased density
- Dell PowerEdge R720 servers provide performance and density optimized for virtual workloads enhanced by NVIDIA Grid Cards
- Dell EqualLogic hybrid storage arrays let you choose the right balance of capacity, cost, and IOPS
 - Go all-SSD to maximize performance
 - Go hybrid SSD/SAS for mix of performance and capacity



Client



Connectivity



Management



Hypervisor



Server

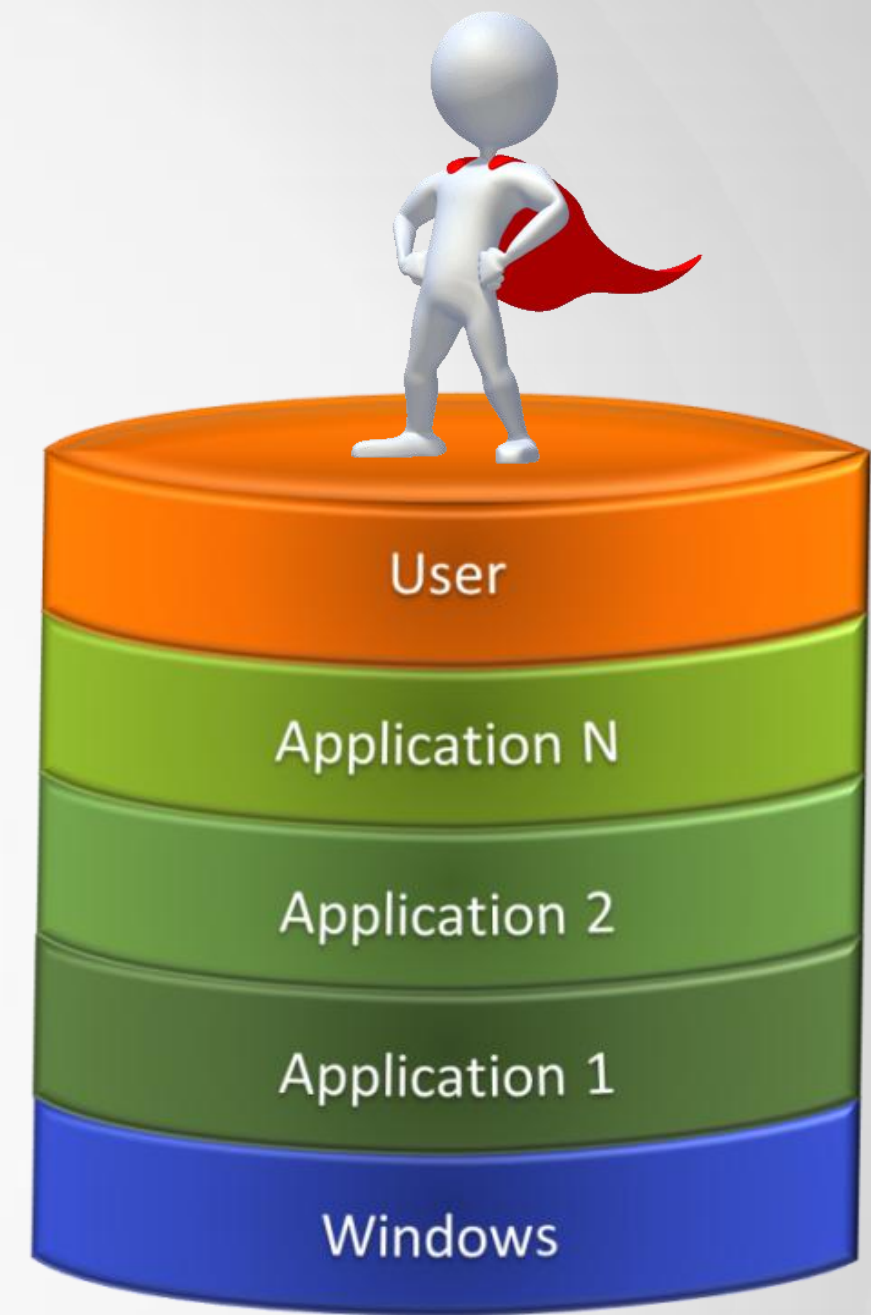


Storage

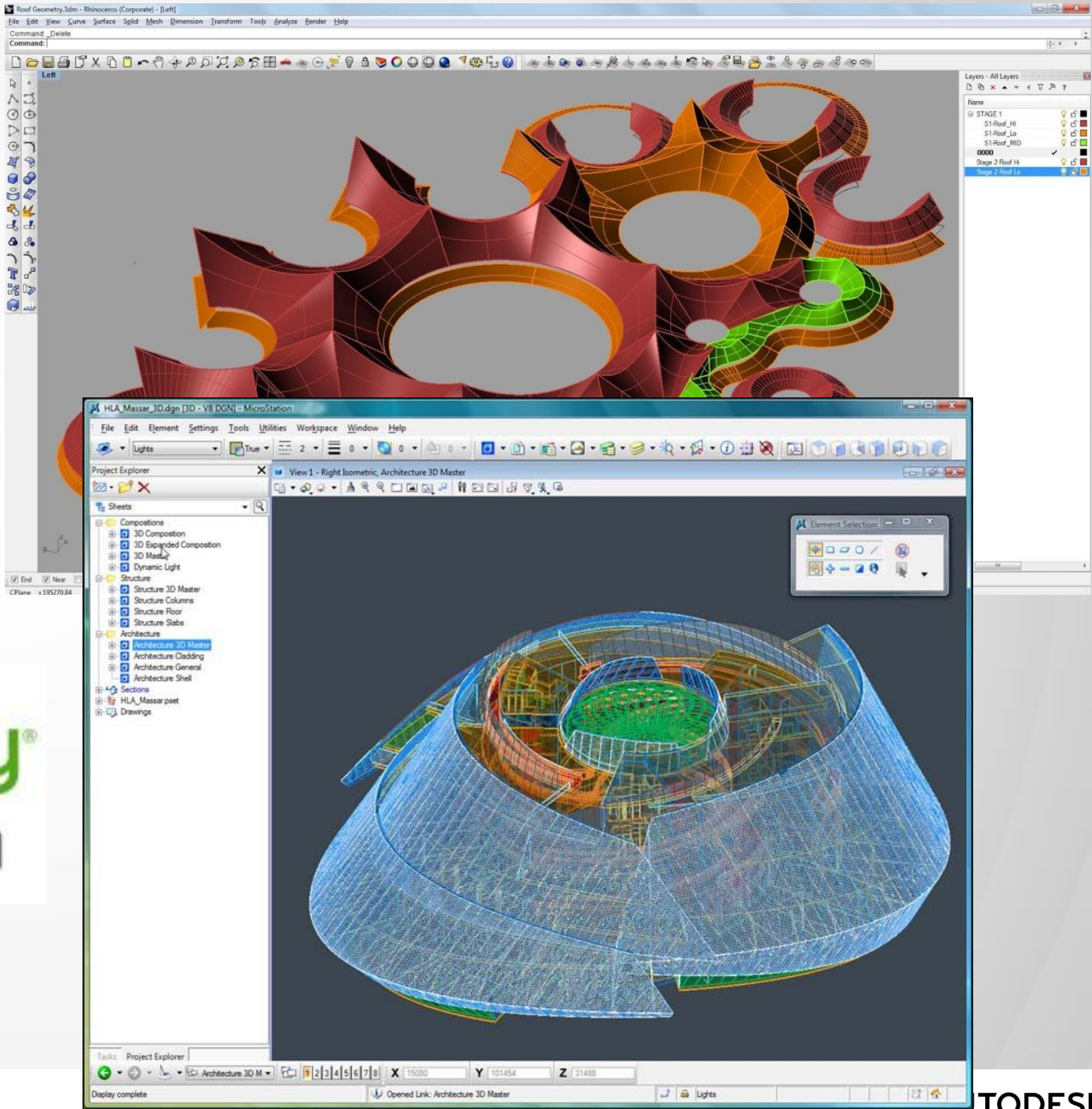


Unidesk

- Easy, all-in-one management – desktop provisioning, application virtualization, image management, persistence
- “Layering” apps far easier than isolating them
- No app cross-communication or packaging limitations
- 76 apps layered in a few weeks, including complex CAD apps
- 1 OS layer (image) – easy Windows patching
- Storage reduction for persistent desktops
- OS and app layers stored once, used by many desktops
- User layer holds all personalization and one-off apps
- Versioned so we can rollback if user breaks their desktop
- VMware Horizon View integration
- Makes it easy to add desktops to pools



Core Applications



Software

- Unidesk
- Layers
- Benefits
- Challenges

Managing desktops and software...

Traditional vs. Virtual

- Desktop Provisioning
 - Turnaround time difference
 - 1-2 hours vs. 1-2 days
 - Installing software
- Templates
 - Discipline Toolbox
 - i.e. Structural, Energy, Mechanical, etc...
- Updating & Patching
 - 1000 computers, nationwide
 - Personalization Layer

Desktop Provisioning

Desktops Layers Users System

Layer Name = 0 Search Text

Application Layers OS Layers Templates

Layer Name

- B&F_All_DGPA Users Only_Utility_Arcm Masterspec 7
- B&F_All_NYNY Users Only_Utility_Arcm Masterspec 7
- B&F_Arch_Design-Modeling_Autodesk 2013/2014 Products & Add-ons
- B&F_Arch_Design-Modeling_McNeel Rhino 5.
- B&F_Civil/Struc_Design-Modeling_CSI SAP20
- B&F_Civil/Struc_Design-Modeling_CSI SAP20
- B&F_Elec_Design-Modeling_EDSA Paladin De
- B&F_Mech/Elec/Plumb/Fire Pro_Design-Mode
- B&F_Mech_Design-Modeling_Aerofin 3.5.5
- B&F_Mech_Design-Modeling_Armstrong Hum
- B&F_Mech_Design-Modeling_C.D.S. Applicati
- B&F_Mech_Design-Modeling_C.D.S. Applicati

Desktops Layers Users System

Template Name = 0 Search Text

Application Layers OS Layers Templates

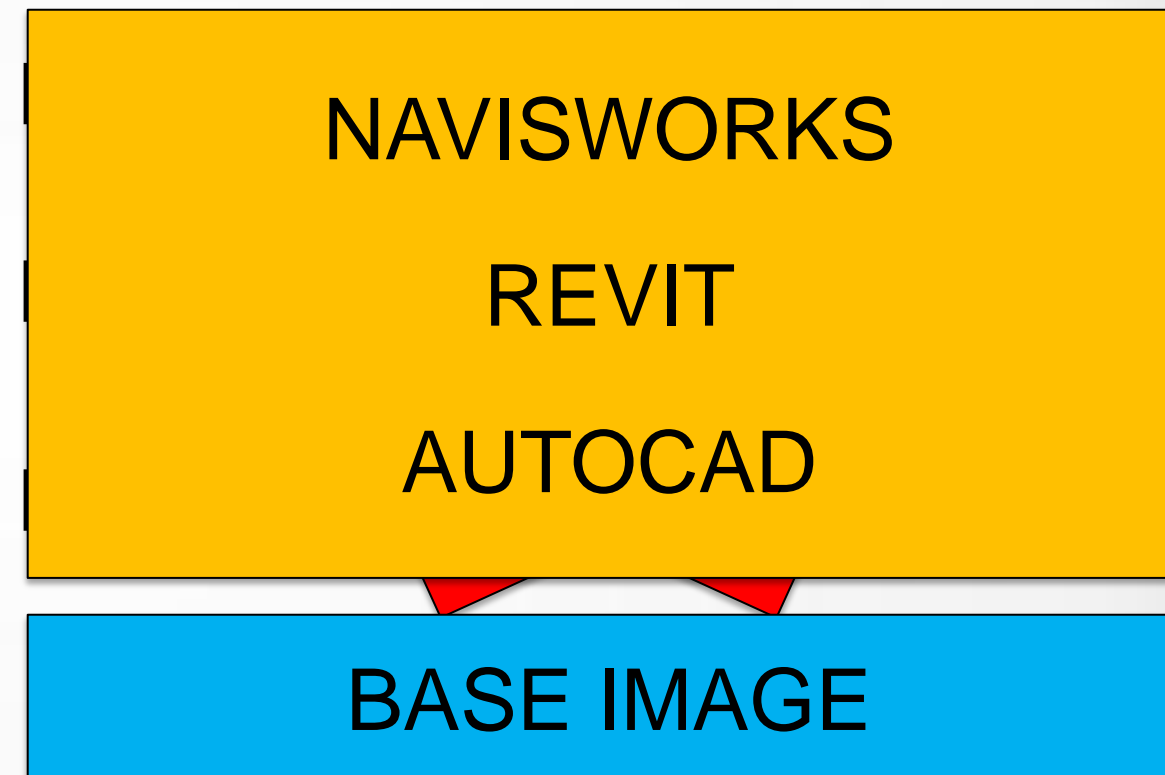
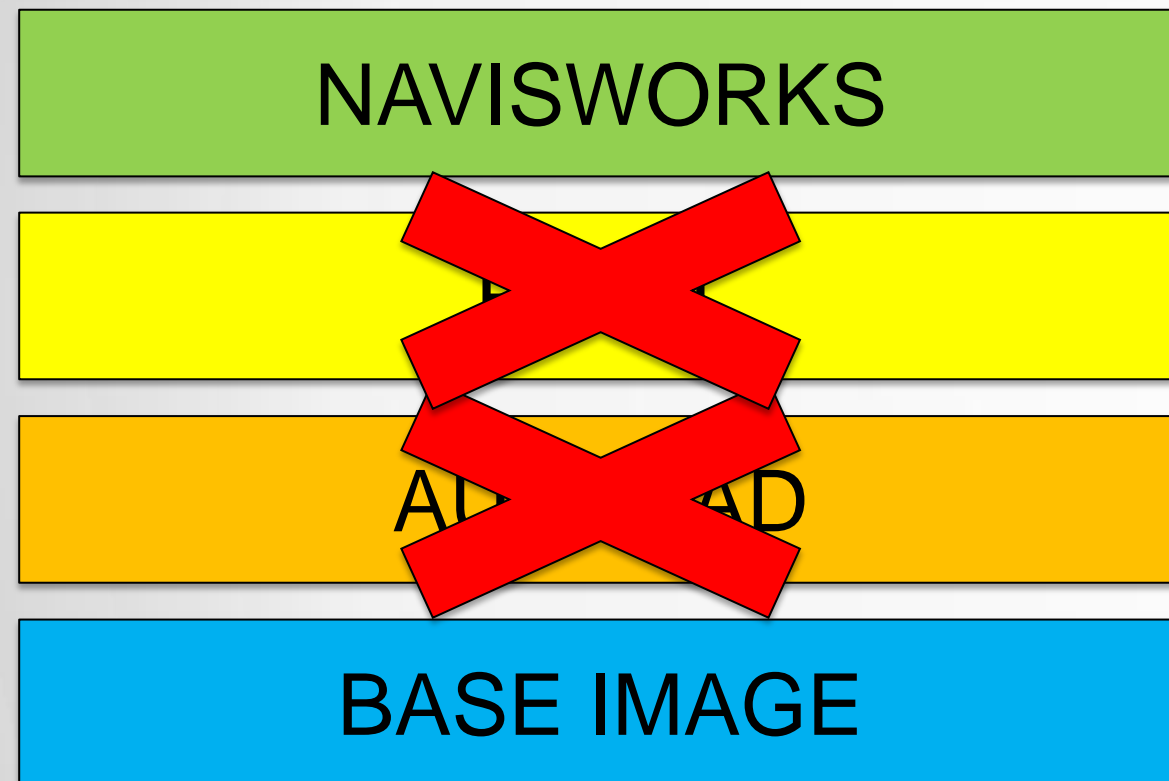
Template Name

- STV CM Workstation
- STV Design Workstation
- STV Electrical Workstation
- STV Energy Workstation
- STV General Desktop
- STV Mechanical Workstation
- STV Structural Workstation
- STV TI Bridge Workstation
- STV TI Civil Workstation

Desktops	Layers	Users	System
Desktop Owner	= 0	X	Search Text
Desktop Name	Desktop Owner		
Unidesk-High129	Blyskal, Pawel		
Unidesk-High189	Bolger, Patrick		
Unidesk-HighP17	Bolli, Raphael		
EnergyWorksta97	Bolton, Tim		
Unidesk-High106	Bonagura, Anthony L.		
Unidesk-High194	Bonamusa, Jill B.		
CMWorkstation24	Bondarchuk, John L.		
GeneralWorks111	Boniface, Brian		
TICivilWorks113	Bonneau, Gary R.		
TICivilWorks109	Borger, David L.		
CMWorkstation19	Bowers, Thomas R.		
DesignWorksta95	Bowersox, Angel L.		
Unidesk-HighP32	Braaten, Daniel		

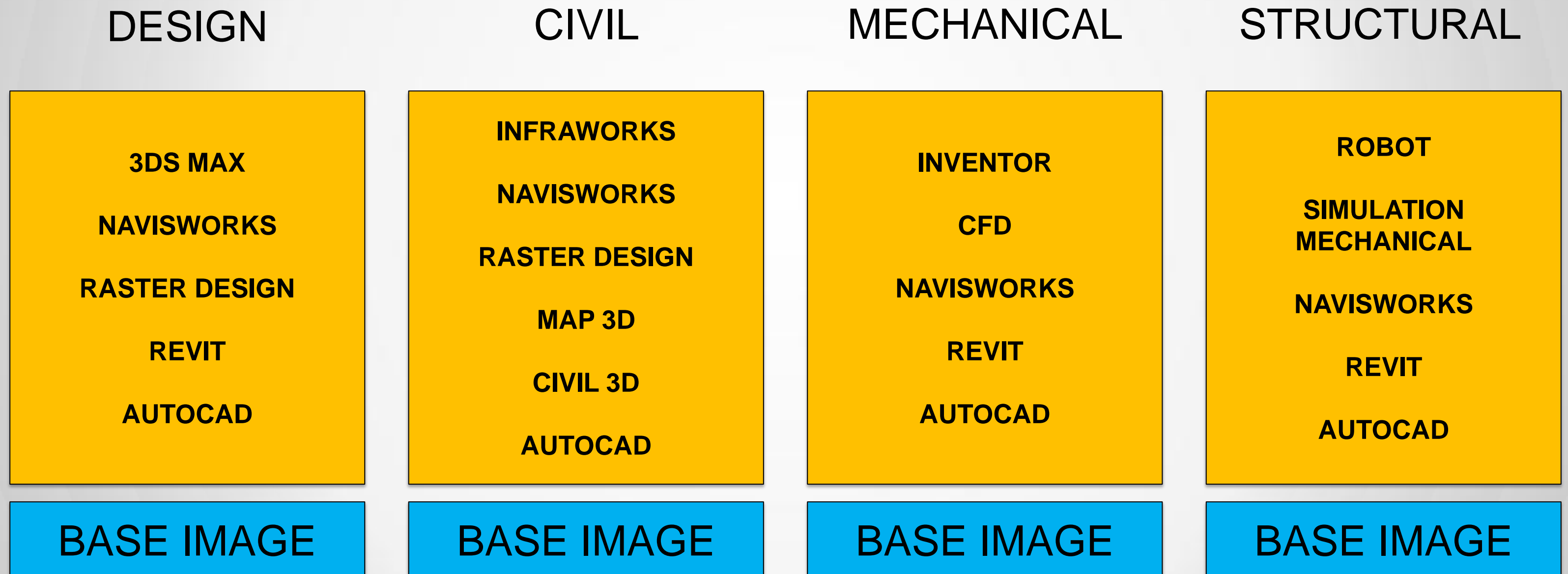
Managing Autodesk software...

- Layer for each Autodesk software?



Managing Autodesk software...

- Bundling Autodesk software?



BENEFITS

- Easy to update/patch and deploy OS, software or desktop specs
- Schedule virtual machines to update during maintenance times or at user log off/reboot
 - No effect to users
- 1-2 hour turn-around time vs. 1-2 days
- Personalization Layer

CHALLENGES

- Some software will just not work
- Users don't log off
- Local desktop settings DO NOT carry over to virtual
 - AutoCAD profile/workspace
- Licensing

Software Licensing

- End User License Agreements still apply
 - Autodesk
 - Bentley
 - Other
- Benefits
 - Consolidation
 - Standard Cloud Workstations
 - Upgrades
- Challenges
 - Projected demand (projects in the pipeline)
 - Inflated pools post project

BIM Workflow on the Cloud

- Best Practices
 - No different
- Render on the Autodesk Cloud
- Workshare Monitoring
- External Stakeholders

Considerations for calculating Return on Investment

ROI considerations

- Firm size
- CAD/BIM Users, number of disciplines
HR/Recruiting, remote work...
- Upgrade schedules
- WAN
- Joint Ventures
- Benefits
- Challenges
 - Convincing partners

Case Studies

- SANDAG
 - Multiple facilities, multiple disciplines
 - STV/Carrier Johnson
- South Beach Psychiatric Center
 - Multiple Disciplines
 - Multiple firms
 - Two firms in a single architectural model
- WRTA – Worcester Regional Transit Authority
- Pennsylvania DOT P3 proposal



Review key learning objectives

Are you able to:

- Describe key components to a Private Cloud
- Understand how a Private cloud and Virtual Workstations provide a platform for authentic BIM (Revit) collaboration
- Recognize best practices, benefits and challenges for managing a private cloud
- Consider developing an ROI and implementation strategy for your firm

Questions and Answers

Thank you!

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Session Feedback

- Via the Survey Stations, email or mobile device
- AU 2015 passes given out each day!
- Best to do it right after the session
- Instructors see results in real-time





A group of four diverse young adults (three men and one woman) are jumping joyfully in a modern, industrial-style office space. They are all smiling and have their arms raised in celebration. The background shows a brick wall, large windows, and office furniture. A semi-transparent white box with text is overlaid on the lower half of the image.

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