



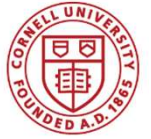
# Client Deployment Assessment (CDA) Final Findings Presentation Cornell University August 15, 2023

## Agenda

- Key Objectives for Cornell University
- Deployment Optimization Model
- Current Deployment Experience
- Key Findings and Recommendations
- Next Steps

**DELL** Technologies







# Key Objectives for Cornell University



- Review the PC Lifecycle process, tools, and methodologies to identify potential for process improvements
- Improve the ordering process with inputs into asset management to improve timing and asset management data
- Observe 4-5 CM task sequence-based deployments in different departments (Engineering, SSIT, JCB, CIT, and CALs)
- Compare the observed deployment timings with the data capture during the IT Functional Review and share details
- Understand onsite logistical costs, cycle / wait times
- Reduce the number of tools and processes used for end user data back up and restore
- Share knowledge about how other universities are deploying devices and share what modern provisioning looks like

# Deployment Optimization Model

Current mode  Future mode

	Basic	Standardized	Rationalized	Dynamic/Lifecycle
 <b>Program Management</b>	No centralized deployment planning or tracking No CMDB management	Deployment status manually tracked through general office software tools	PMO aggregates deployment task status into centralized monitoring tools	Automated deployment management and monitoring with proactive resolution
 <b>Logistics</b>	Inventory not tracked Multiple shipping legs and depreciating warehouse inventory	Devices staged at customer central location before deployment to end users locally or shipped to end users	Devices ship directly from OEM to warehouse. Devices are then shipped to end users	Secure forward and reverse shipping from OEM/Hub to users wherever they live or work
 <b>Imaging</b>	Unsecured Static or multiple Images loaded via manual processes	Automated OSD task sequence executed onsite	OSD applies all current IT standards at the OEM/Hub with automated rebuilds	Cloud tools apply all current IT standards once the end user logs on. Devices can easily be reset for break/fix and reuse
 <b>Applications</b>	Unmonitored application inventory Some applications packaged	Curated, updated, and packaged application library integrated with OSD	Baseline and high percentage of end user applications install automatically or are available in the company app store	Device/User specific applications installed at OEM/Hub and available in self-service app store and persona-based application provisioning
 <b>User Data</b>	No Data Encryption Files copied manually	Tool based data & settings migration	Secure cloud used for temporary data migration during deployment	Fully Encrypted Data User data lives in secure cloud and available to user on any device
 <b>Security</b>	No Security applications installed No Threat Detection Stale patch level	Anti-virus installed Limited Threat Detection No SIEM/SOAR solution	Critical Patches installed XDR & Vulnerability mgmt. program Monitoring via SIEM solution	SOC team in place 24/7 Full change control and patching/vulnerability/threat management practice
OPTIMIZED				



# Key Financials



# Key Financials - Summary



## Assumptions:

Total Windows Client Devices	~22,000
Deployed Annually	~7,300

Based on the following lifecycle:  
3-year refresh

Work Weeks per Year	48
Work Hours per Week	40
Average Burdened Salary	\$99,600
Hourly Labor Rate	\$51.88

## PC Deployment Costs Per Client Device:

Current Cost*	\$255.92
Projected Cost (Leveraging Recommendations from Dell)	\$134.01
Projected Savings per PC**	\$121.91
<b>Annual Projected Total Savings</b>	<b>\$899,915</b>
<b>Total Devices Projected Total Savings</b>	<b>\$2.68 M</b>

Based on the following lifecycle:  
3-year refresh

\* Estimated costs reflect only direct costs, such as technician labor, and does not include downstream savings, such as increased end-user productivity or incident elimination

\*\* Estimated savings do not reflect costs of any new infrastructure; Application Rationalization; SCCM Assessment; Network infrastructure assessment; Bandwidth constraints in remote locations or any physical upgrades to the back end and labor cost

# Key Financials - Summary



## Assumptions:

Total Windows Client Devices	~22,000
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5-year refresh

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Current Cost*	\$255.92
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Projected Savings per PC**	\$121.91
<b>Annual Projected Total Savings</b>	<b>\$536,388</b>
<b>Total Devices Projected Total Savings</b>	<b>\$2.68 M</b>

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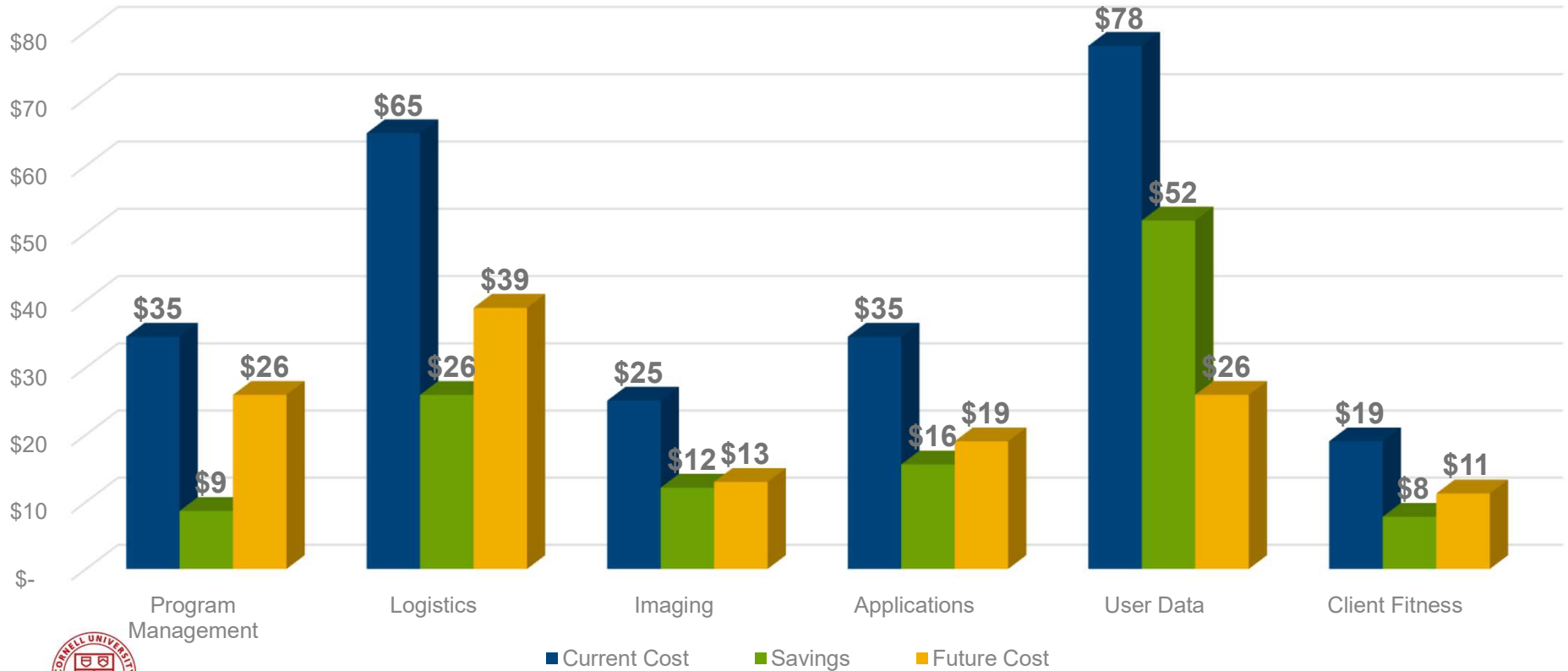
# Time Savings

Time Savings Comparison Table			
	HH:MM:SS	HH:MM:SS	
	Current Mode of Operations (CMO)	Future Mode of Operations (FMO)	Difference
Program Management	0:40:00	0:30:00	0:10:00
Logistics	1:15:00	0:45:00	0:30:00
Provisioning	0:29:00	0:15:00	0:14:00
Applications	0:40:00	0:22:00	0:18:00
User Data	1:30:00	0:30:00	1:00:00
Security	0:22:00	0:13:00	0:09:00
Total	4:56:00	2:35:00	2:21:00

# Financial Breakdown

## Device Deployment Savings

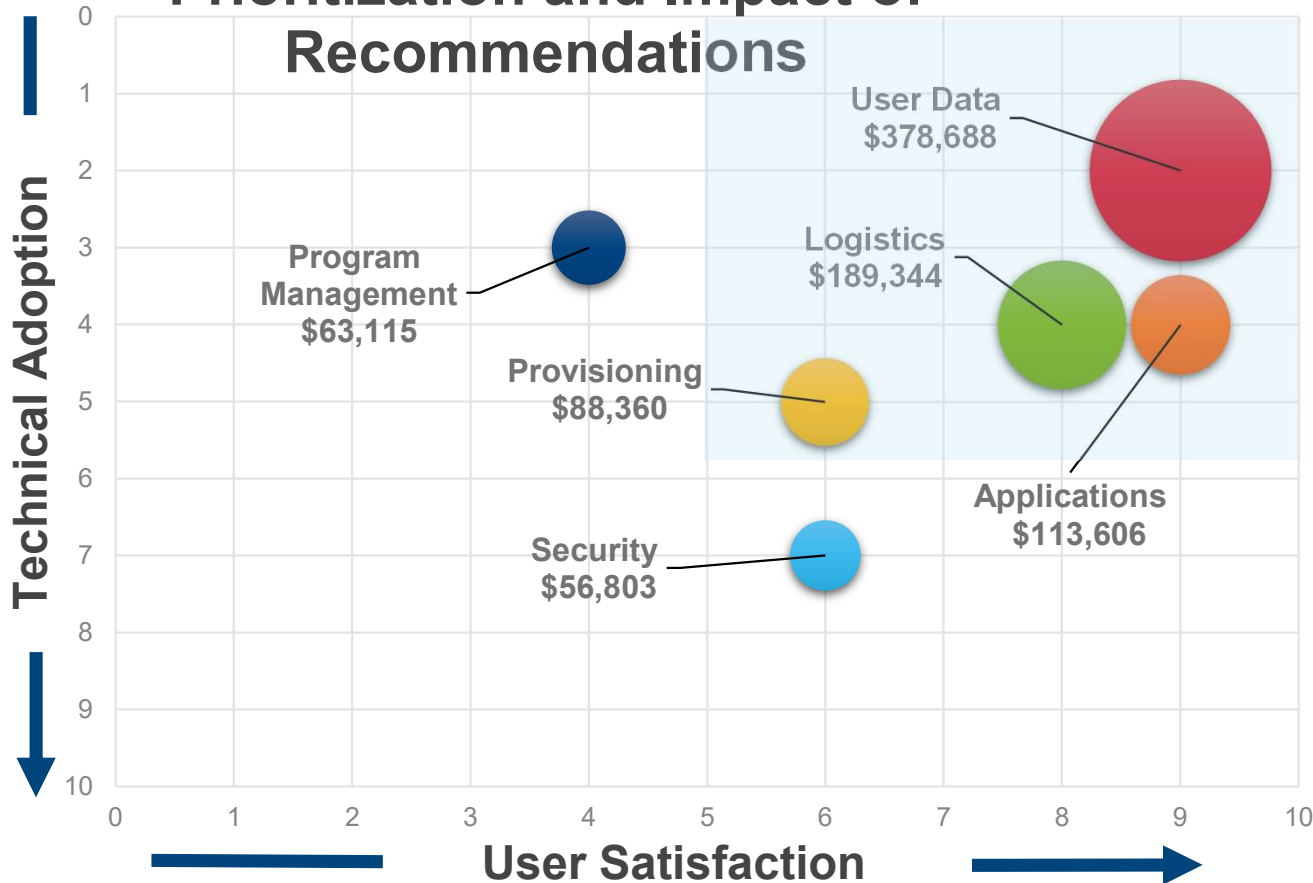
Current Cost	<b>\$255.92</b>
Projected Cost	\$134.01
Savings per PC	\$121.91





# Prioritizations

## Prioritization and Impact of Recommendations



The chart indicates the relative value of the recommendations in the CDA findings report

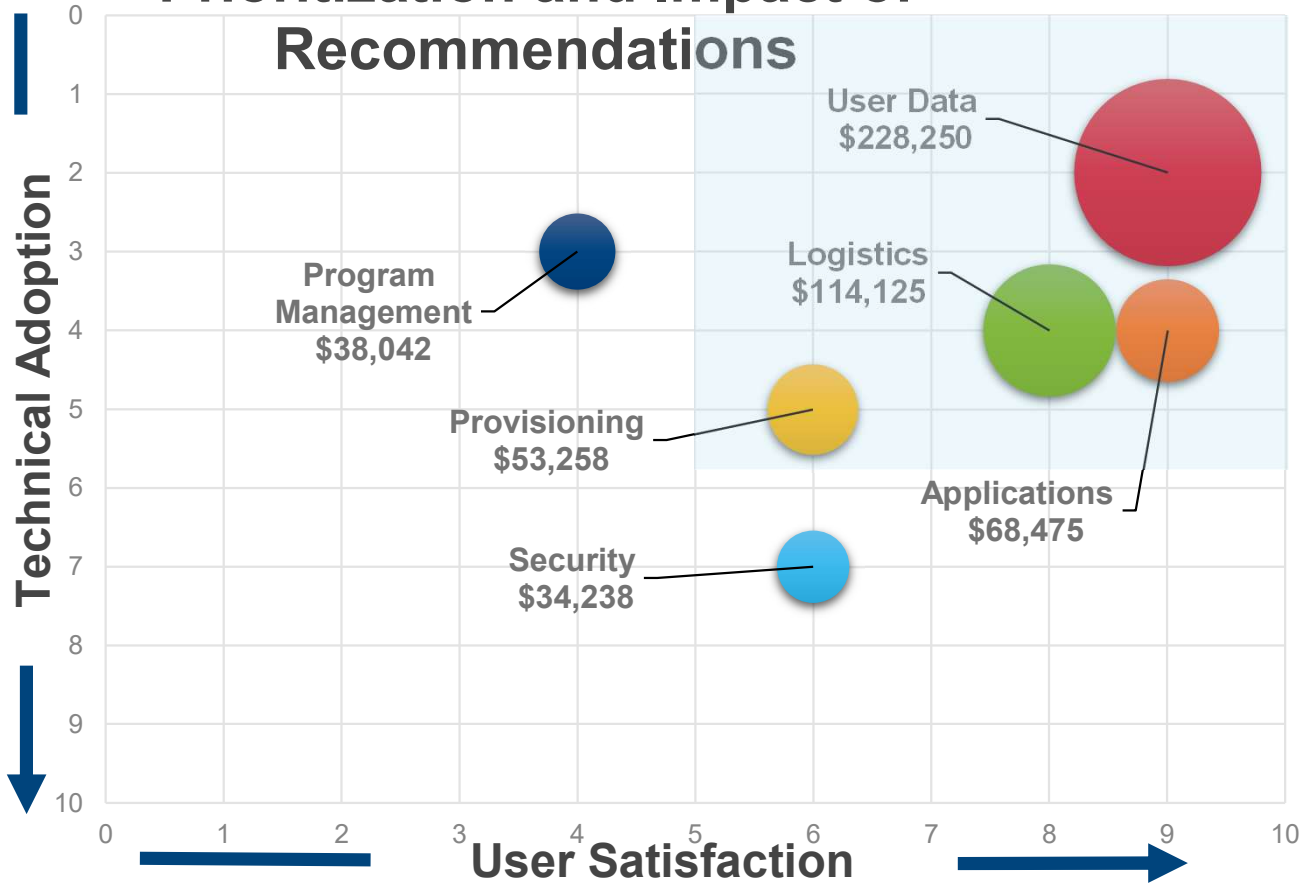
The size of the bubble represents the overall opportunity- the highest priority changes are shown by large bubbles in the upper right-hand quadrant

Based on a 3-year lifecycle



# Prioritizations

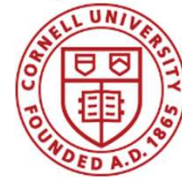
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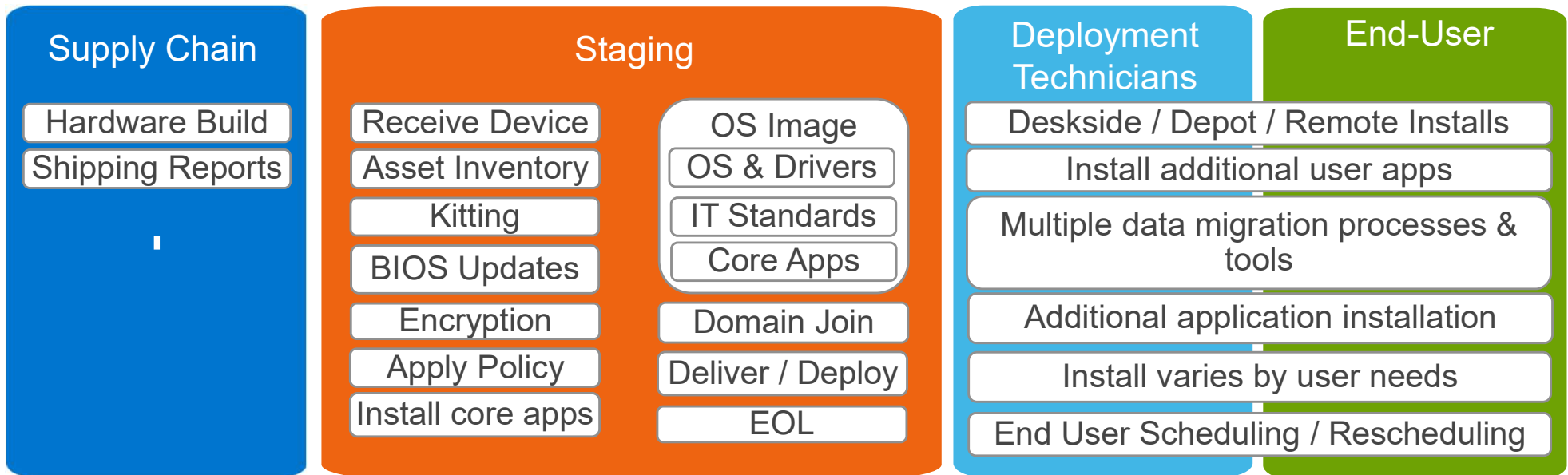
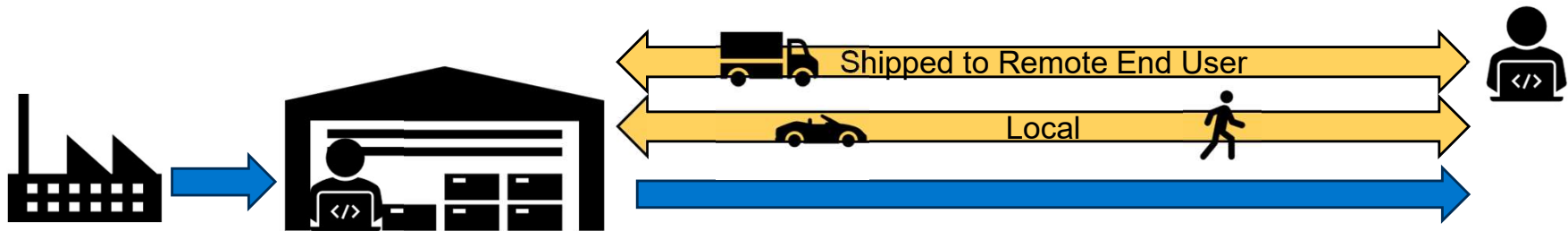
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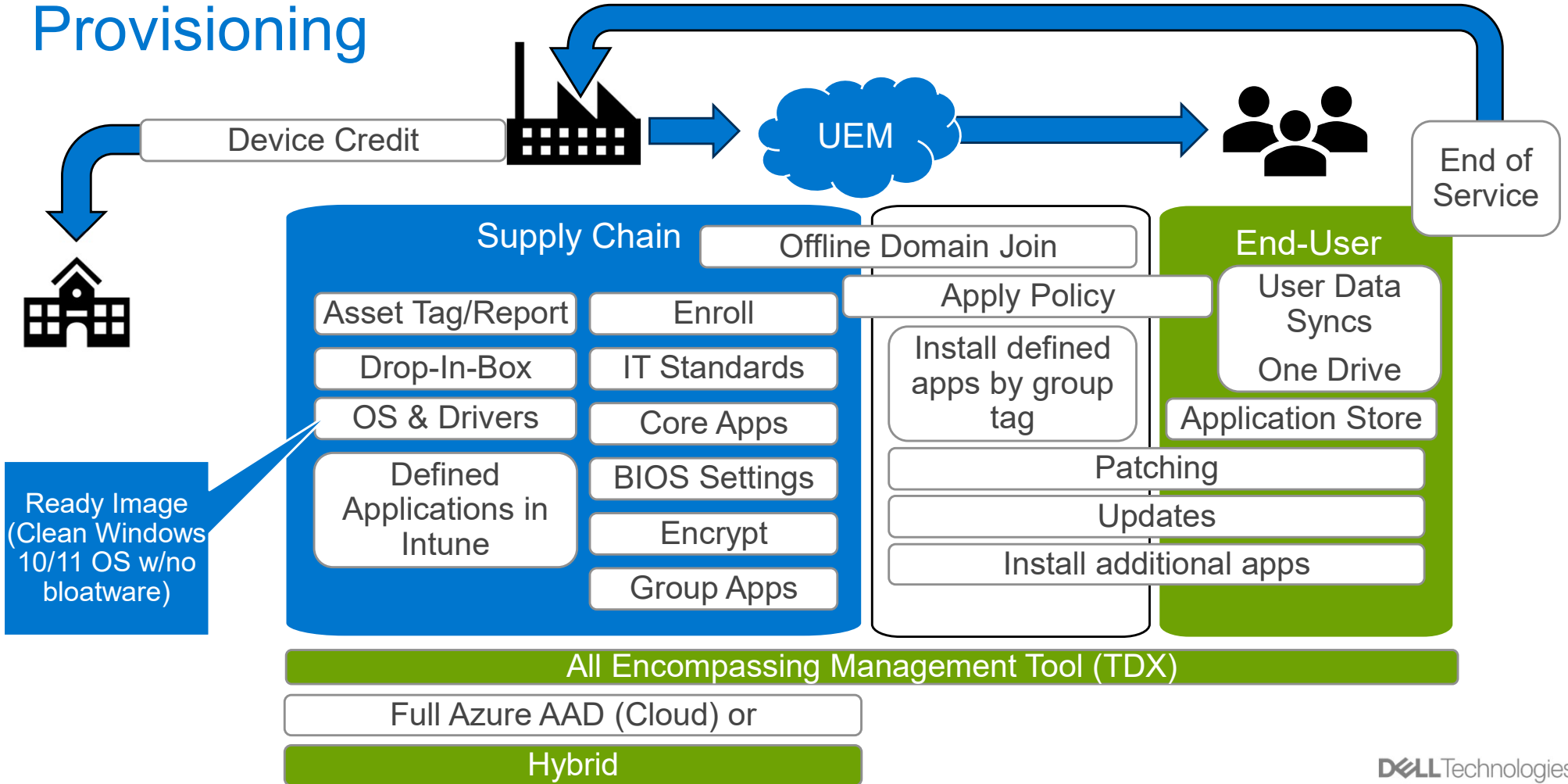
Based on a 5-year lifecycle



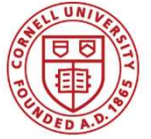
# Current Deployment Experience



# Future Deployment Experience- Modern Provisioning



# Key Findings



## Program Management

- Cornell uses E-Shop that pops out to bundles
  - 90% of all Dell orders are those bundles – contract with Dell
  - 3- year warranty default. Can change whether they have ProSupport
- ~22,000 Windows device count with ~8,000 Macs
- User self-service ordering needs refinement (TDX)
- Cornell is working on improving the ITAM solution (Snipe IT) to improve accuracy
- TDX requests are routed to queues that assign deployment tasks to the proper teams

# Recommendations

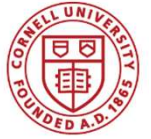


## Program Management

- Build out an all-encompassing ITAM solution that ties into OEM provided data to reduce manual entry into Snipe IT
- Improve ordering and receiving as well as the front-end request portal for end user self-service
- **Dell Technologies Tech Direct** can be leveraged to create device-based “personas” in the ordering portal, creating the illusion of choice
  - This will also be a part of the Dell Technologies Factory Provisioning for Autopilot (Connected Provisioning) in the factory to have devices mostly pre-provisioned prior to shipment from the OEM
- Build out an automated communication process workflow in TDX (use CALs as an example)



# Key Findings



## Logistics

- Several departments were observed for logistics:
  - COE/CIS Engineering and Tech, SSIT, Cornell Health, JCB, CIT, and CALs
- Multiple shipping legs (some departments do not have loading docks or much storage space)
- Cornell staff traveling to site locations for an end user deployment (1400+ acre campus with 400+ buildings) sometime needing to cart the device over to another building on campus for deployment. This adds significant time and cost to logistics
- TDX is used for ticket tracking
- Snipe IT for asset tracking but many reported that the data was not always accurate
  - Needs better input between OEM and Cornell
  - Lacking API Integrations
  - TDX workflow Refinements (use CALs as an example)
- E-Waste disposal is placed on Cornell with coordinated pick-ups from Facilities R5 recycling. Hard drives are sent to R5 separate from devices

# Recommendations



## Logistics

- Receive systems where you want them, when you want them, and how you want them
- Utilize **Connected Provisioning** in the factory with Modern Provisioning technologies and a Unified Endpoint Management (UEM) solution
- Leverage the factory supply chain to bundle additional consumables and include drop-in-box instructions for remote end-users with out-of-box instructions
- Investigate leveraging Dell shipping discounts to determine cost savings over the current process

# Key Findings



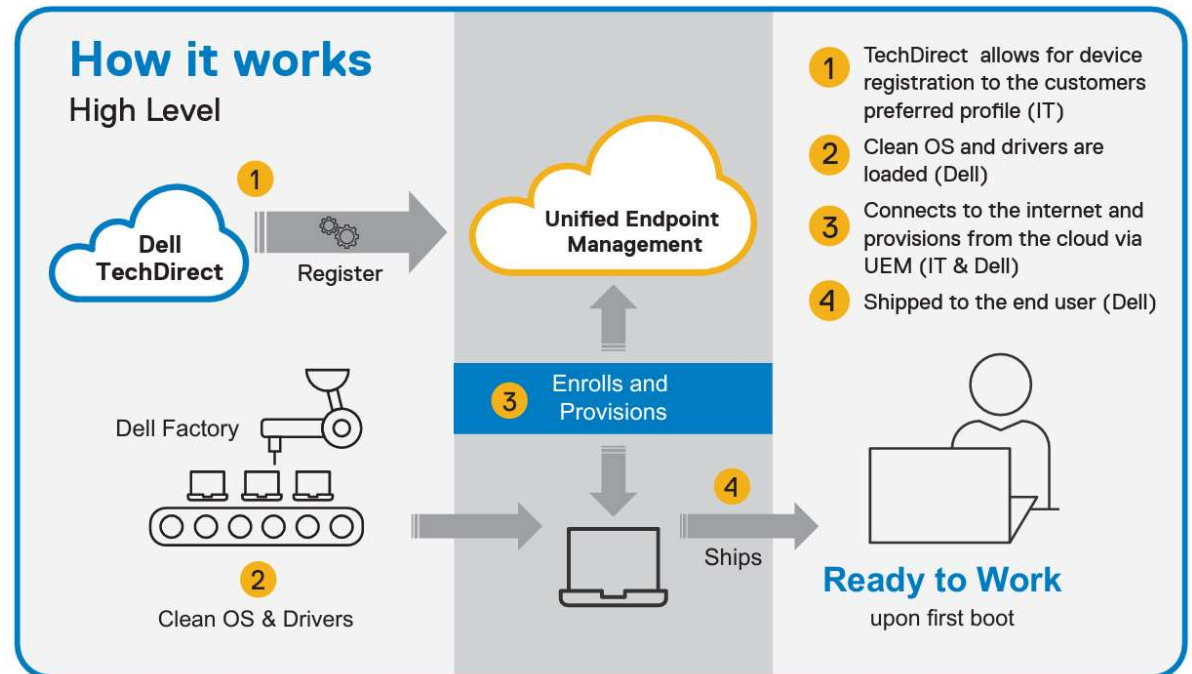
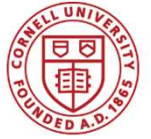
## Provisioning

- Several manual steps existing prior to provisioning (BIOS, adding MAC address, DNSDB updated, etc.)
- Image is applied via PXE boot via a customized OSD front-end
- The standard OS task sequences are for a Windows 10 or a Windows 11 image
- Touch time observed was an average of ~15 minutes
- Cycle time for image is about ~50 mins to ~95 minutes or more depending on updates and additional software or post installation tasks including driver, SCCM, and Windows updates
- Cornell is using a standard Certified Standard Desktop TS and each department is using a custom TS based on their needs for additional applications and settings

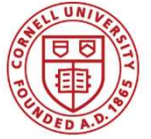
# Recommendations

## Provisioning

- Utilize a robust **UEM** solution
- Start with a greenfield environment and migrate away from on-prem OSD based deployments
- Engineer a UEM solution that leverages a Hybrid join scenario from the factory
- Understand Device Redeployment / Reutilization with UEM methodologies



# Key Findings



## Applications

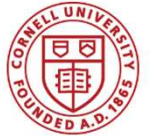
- Applications are deployed by both OSD Task sequences and managed via SCCM and available via a self-service company portal
- Office 2019 and Office 365 (usually 2019)
- According to Certified Desktop standards 9-10 base applications are installed via the task sequences
- A Configuration Manager Packager (CMP) is used in the environment – it is an automated script that reaches out to the vendor website, downloads and packages the application, and makes it available within 24 hours
- Many “Optional” applications are available to the various task sequences based on the departmental / end users needs
- Applications can also be installed after the task sequence based on collections
- Install of unique non-standard applications for the end user averaged an additional 16 minutes among the 5 departments observed

# Recommendations

## Applications

- Completion of a Dell Factory Provisioning for Autopilot Quickstart will:
  - Identify and package up to 10 applications for Intune / Autopilot deployment
  - Knowledge transfer on how to convert existing SCCM / CMP packages will be shared for Intune
  - Assigning Intune applications to Intune smart groups will be documented and shared
  - Compliance policies for core and security applications will be documented and shared
  - Maps users to custom-defined application personas
  - Will result in less need for post-imaging / provisioning application installs

Dell Technologies Application Factory Services – Global Remote Delivery (GRD) can be leveraged to accelerate the packaging, testing, and publishing of the application catalog to Intune





# Key Findings



## User Data

- Several processes and tools are being utilized to migrate end user data
  - Google Drive
  - OneDrive for Business (not all GPOs are in place)
  - Box
  - Z-drive (network drive)
  - CrashPlan
  - Local storage (network storage that can be purchased)
  - Local hard drive (on occasion)
- Data migration touch time was an average of 20 minutes and cycle time various from 30 minutes to hours depending on the size of end user data and when the last backup was done

# Recommendations



## User Data

- Reduce data migration methodologies down to (at most) 2 tools for end user data storage and migration
- Data migration engineers can work with Cornell University to investigate and develop solutions
- This will reduce data migration touch times and cycles time an average of more than 67%

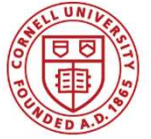
# Key Findings



## Security

- Certified Desktop standard is in place
- Several dashboards are used to track compliance such as SCCM and Tableau:
  - 3<sup>rd</sup> party application patching, Confidential data scan, Malware Protection, OS vendor patching, Screen Lock, and System Backup
- Certified Desktop ensures that the following agents are installed:
  - Alterus, Cisco AnyConnect, Crowdstrike sensor, and Spirion ITSO Central
- Policies are enforced during the task sequence to enable encryption
- Several BIOS settings are set or double-checked manually prior to imaging
- EOL Devices have the drives wiped

# Recommendations



## Security

- Leverage device encryption before leaving the factory, thus ensuring the protection of the device, data, and identity
- Enable and enforce BIOS settings in the factory to reduce several minutes of manual touch prior to imaging
- Engage in a Dell Technologies Security Workshop to discuss security technologies in place as well as Managed Detection and Response (MDR)
- Take into consideration the recommendations from the Security workshop assessment



Next steps

 **DELL**Technologies

# Next Steps



- Engage in a **Dell Factory Provisioning for Autopilot Quickstart** in order to:
  - Leverage Unified Endpoint Management (UEM) to provide cloud management of clients over an internet connection after assisting with establishing customer requirements
  - Develop a Hybrid UEM Solution / Cloud Solution
  - Work with an Intune Subject Matter Expert (SME)
  - Package and populate Intune with Certified Desktop core applications, security policies, and end user application group assignments
- Utilize **Dell Factory Provisioning for Autopilot White Glove** in the factory with device group tags. This will allow provisioning of OS and Certified Desktop applications / security standards to be deployed in the factory prior to shipment. End user assigned applications will install at first logon
- **Reduce the number of data migration tools** and processes in use down to (at most) 2 tools for end user data storage and migration (OneDrive and Google Drive)
- Engage in a **Dell Technologies Security Workshop** to discuss security technologies in place as well as **Managed Detection and Response (MDR)**
- Investigate the use of **Dell Technologies Application Factory Services – Global Remote Delivery (GRD)** to accelerate the packaging, testing, and publishing of the application catalog into Intune



# Thank you

# Appendix

## The Dell difference

### Experts

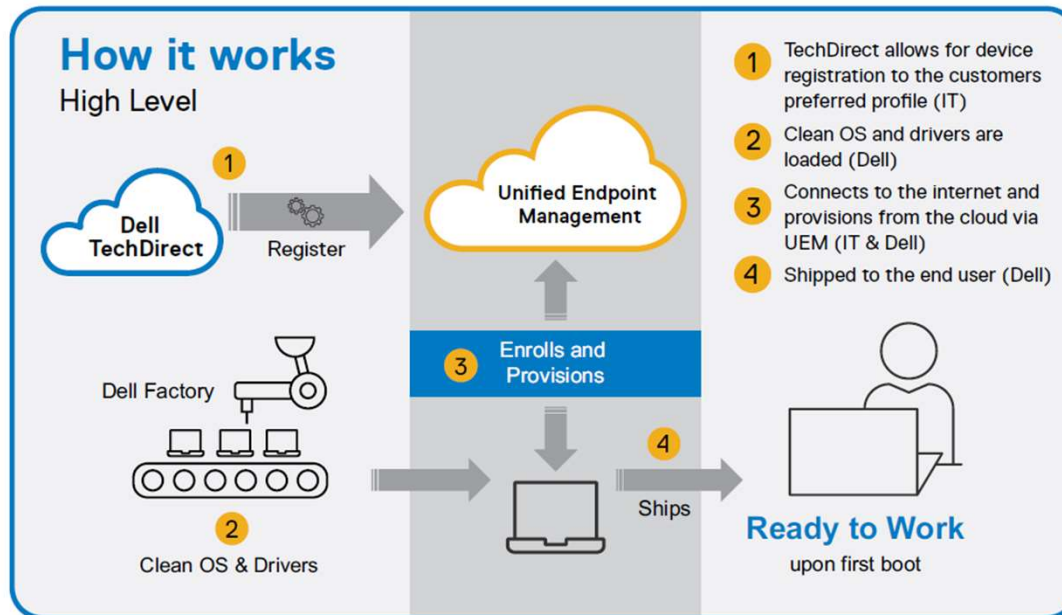
- 17 patents on deployment technology
- MSFT partner of the year for the last 10 years

### Insights

- Over 11 million systems configured globally each year
- Over 54K systems imaged globally each week
- 93% customer satisfaction for Dell configuration services

### Ease

TechDirect self-service portal gives IT administrators the tools they need to set up their Connected Provisioning order and manage all aspects of production, provisioning and direct shipment of devices.



Choose Dell Connected Provisioning and experience true modern provisioning.

# Future Mode of Operation

## Dependencies

- Building out the Infrastructure to support a UEM solution
- Policy management
- Device management
- Application management and delivery
- Applications uploaded to Intune
- Offline domain join
- Autopilot reset functionality
- Persona Assessment
- Application Profiling

## Intune (Connected Provisioning)

### The Dell difference

#### Experts

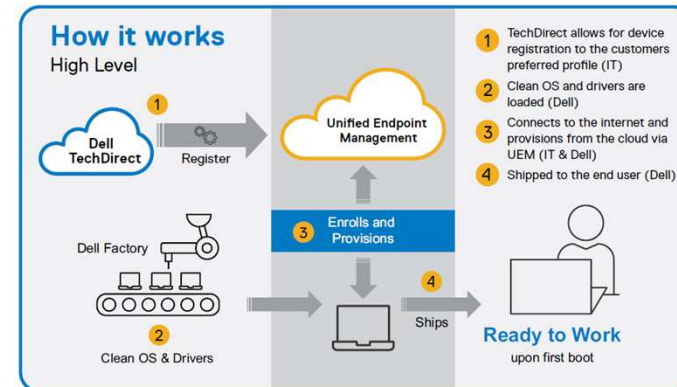
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# Future Mode – Dell Technologies Intune Quickstart

## Recommendation

- Work with an Intune Subject Matter Expert (SME) to understand the best approach to tackle these challenges
  - Project management
  - Environment review
  - Management console introduction
  - Application management and device assignment
  - Device enrollment pilot
  - Knowledge transfer
- Customize your engagement to fit the needs of Cornell University
  - How will Cornell University UEM solutions tie into existing technologies
    - Consider a residency
      - Will new technologies need to be introduced
        - Build out a more robust and accurate ITAM
        - Change Management Structure and training