

ThinkPad Tablet Imaging Customer Presentation

WW Services Team
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Tablet Customer Challenge

I just bought 500 Tablets for my end users. How do I get them all set up without unboxing and touching each one?



Tablets Introduce Business Risk

Out of the box, a new tablet:

- Has all of its ports activated
- Does not encrypt its SD slot
- Does not have password requirements
- Allows any unauthorized Android App to be installed and run
- Will not sync to a PC
- Cannot connect securely to your network
- Does not meet any data privacy standards (such as HIPPA)



- Has none of your company's Apps
- Uses Lenovo default wallpaper
- Is a generic consumer device

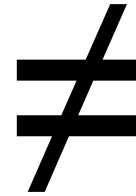
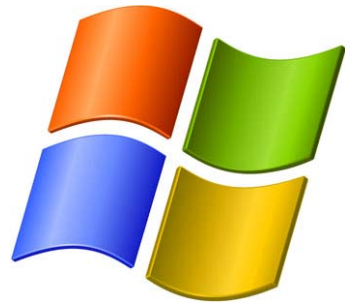
Tablets need considerable customization before they are ready for business use

Android Tablets Are Not Deployed Like Windows Machines

- “Bare metal” deployment is not possible
 - Rooting the device voids the system warranty
 - There is no Windows Sysprep equivalent to capture the settings off of one tablet and deploy those settings to many devices
 - Customers must modify and customize the existing Android factory preload



IT Teams Must Learn New Management Processes for Android



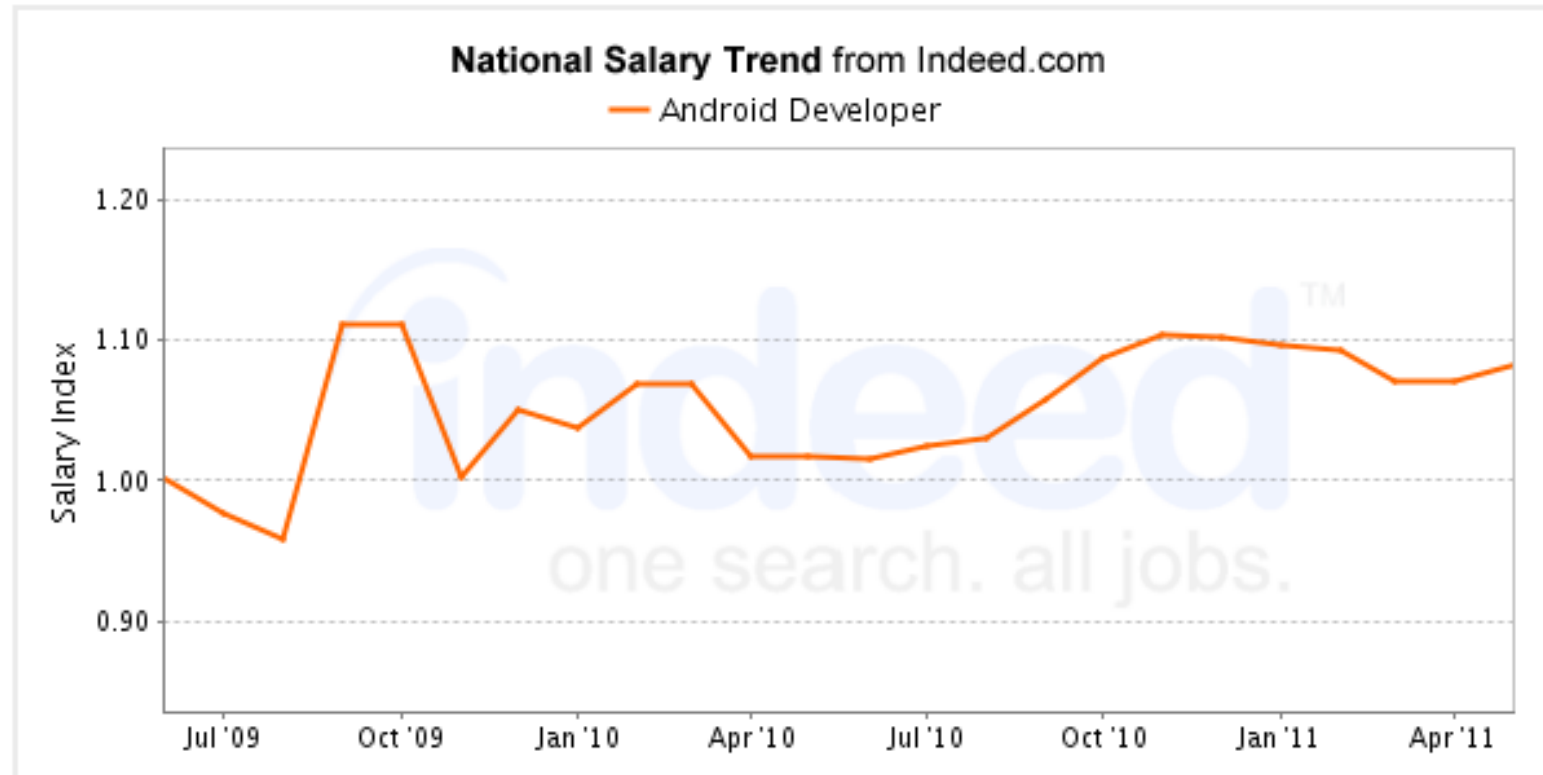
Windows Management

- Well known
- Highly automated tools
- Access to system root
- Easy to mass-deploy operating system settings and applications/settings
- Robust centralized management to manage both device and end user settings

Android Management

- New processes
- Relies on fragmented toolset which is different than Windows toolset
- No access to system root – must use existing tablet preload to customize
- Android operating system settings are configured differently than applications
- Most management tools focus on device management, not end user configuration management

Android Expertise is Increasingly Expensive

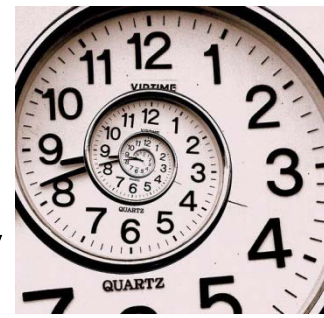


Android Application Developer in Chicago, IL	\$101,000	
Android Developer in Chicago, IL	\$110,000	
Senior Android Developer in Chicago, IL	\$112,000	
Mobile App Developer in Chicago, IL	\$91,000	
Senior Mobile Developer in Chicago, IL	\$110,000	
Android Developer Android Programmer in Chicago, IL	\$94,000	
Mobile Application Developer in Chicago, IL	\$94,000	
Mobile Developer in Chicago, IL	\$99,000	
Mobile Apps Developer in Chicago, IL	\$84,000	
Senior Mobile Application Developer in Chicago, IL	\$108,000	
Mobile Application Architect in Chicago, IL	\$144,000	
Web Mobile Application Developer in Chicago, IL	\$87,000	

<http://www.indeed.com/salary?q1=Android+Developer&l1=chicago%2C+il>

Relying on Lenovo Android expertise can avoid expensive hiring

Manual Tablet Configuration Wastes Valuable IT Time



- Android does not have the capability to export existing settings on one tablet for later deployment on many tablets
- Android Apps do not use XML for configuration – each app stores its settings internally based on individual developer preferences. There is no Windows Registry equivalent.
- Without help, IT teams or Business Partners will manually have to configure each tablet for their end users

Configuration	Time Per Task
Wi-Fi and network setup	5 minutes
VPN download and configure	5 minutes
Power settings, wall paper, volume control, general config.	10 minutes
Install and update virus protection	5 minutes
Download and install apps	15 minutes
Remove unwanted apps	5 minutes
Arrange icons	10 frustrating minutes
Hardware disable ports and devices through GUI interface	Not possible
	~ 1 Hour Per Machine

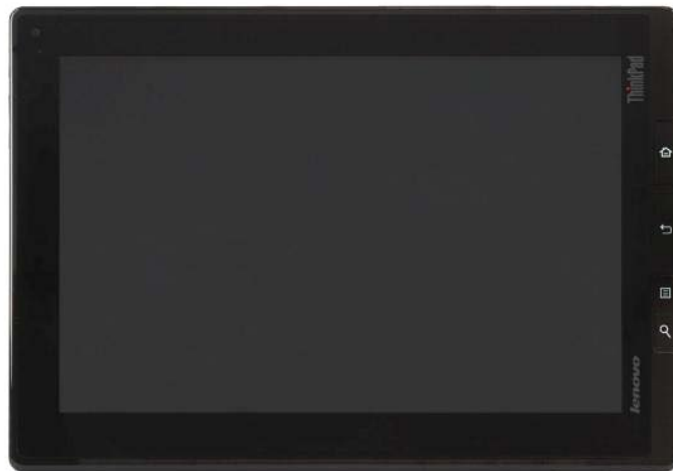
Are you ready to spend 1 hour per tablet manually customizing for end users?

Do you have Android expertise on staff?



“Tablet Management” is Three Separate Conversations

1. Device Control



Device discovery on a network, physical inventory, and remote wipe if stolen

2. System Settings



Wi-Fi setup, 802.1x certificates, power settings, language, port enable/disable, screen lock, wallpaper, etc.

3. Application Management



Adding, removing, and controlling apps

Tablet Management Solution Evaluation

Many solutions are inadequate to meet full customer needs

- Following pages provide an evaluation of each solution along the three axes of tablet management: **Device Control**, **System Settings**, and **Application Management**

Device Control	System Settings	Application Management

Lenovo ThinkManagement Console



Advantages

- Tablet discovery on the network
- Centralized inventory of tablet devices
- Remote wiping of tablets
- Works with Microsoft Exchange
- Functionality provided at no extra charge

Limitations

- Manages the device, not the settings on the device
- Cannot add, remove, or change applications

Device Control	System Settings	Application Management
		



Exchange ActiveSync



Advantages

- Works with existing customer Microsoft Exchange environment
- Will help with device management and basic configuration security setup such as remote inventory and wipe

Limitations

- Not for deploying system settings
- Not for deploying apps
- SCCM 2012 will offer more, but not be in use for at least 1 year

Device Control	System Settings	Application Management
		

Lenovo Mobility Manager



Advantages

- Easy way to set security and configuration settings for fleet of end users
- Preinstalled agent works with Exchange Server
- Can provide secure ongoing device configuration updates to end users

Limitations

- Requires LANDesk plugin (\$30 per seat)
- Pull, not push, update process requires end user to log in to Mobility Manager console to get configuration updates
- Cannot manage or deploy applications

Device Control	System Settings	Application Management

Lenovo App Shop



Advantages

- Customized company catalog with capability to add customer-proprietary apps
- Volume purchase apps
- White lists and black lists
- Can copy Active Directory access control list to prepopulate end user App Shop accounts
- App audits, deactivate App Shop installed apps

Limitations

- Requires end user to log in to App Shop
- Manage apps only, not device or device settings
- Cannot push apps to end users
- Can only touch apps installed through App Shop
- Setup through 3rd party (MobiHand) for extra cost depending on customer requirements

Device Control	System Settings	Application Management
		

XML Configuration

XML

Good For

- Setting device settings

Limitations

- Sets device settings only
- Requires manually coding XML – Android does not provide a way to “Sysprep” or otherwise export settings off of an existing device
- Requires customer to develop a method to email or otherwise get XML configuration file to end users
- Requires end users to manually accept XML file through Lenovo Configuration Manager (already preloaded)

Device Control	System Settings	Application Management
		

Lenovo ITC Custom Android ROM



Advantages

- Setting device settings, configuration settings, preloading customer defined apps, removing unwanted apps
- Tablet comes out of the box completely customized, secure, and ready to connect to a company's secure network
 - Significant time savings
 - Enforced end user compliance to company policies
- Lenovo ITC exclusive capabilities not available from any other manufacturer or any other tool
- Does not affect warranty coverage

Limitations

- Fewest limitations of any solution available.

Device Control	System Settings	Application Management
		

Lenovo ITC Android Custom ROM Advantages

- Only Lenovo ITC Android Custom ROM can address all three management categories

	Device Control	System Settings	Application Management
Lenovo ITC Android ROM	✓	✓	✓
Mobility Manager	✓	✓	✗
Exchange ActiveSync	✓	✗	✗
App Shop	✗	✗	✓
XML	✗	✓	✗
ThinkManagement Console	✓	✗	✗

- In addition, Lenovo ITC Android Custom ROM can provide functionality not available through any other tool or method
 - Rewriting customer-defined settings upon reboot
 - Deploying applications as part of a custom OTA update
 - Android Marketplace and other Google App removal (requires Google approval)
 - Other app removal
 - Custom customer ROM will survive a hard reset
 - Custom MTM will only update to approved customer OTA updates
 - Custom icon placement

Lenovo ITC Custom Android ROM Exclusives

Lenovo Custom Android ROM Exclusive	Customer Advantages
Rewriting customer-defined settings upon tablet reboot.	Lenovo ITC can develop an image that always reapplies certain settings or applications upon reboot. This can significantly reduce support costs. For example, a customer could set a policy that all Wi-Fi settings are reset to customer defined standards every time a system reboots so that even if an end user changes or messes a setting up, a reboot will make everything normal again.
Deploy applications as part of a custom OTA image update.	OTA updates can only come from Google or Lenovo. They cannot be created by customers or BPs. Google OTA updates do not contain any apps. Customers who are applying the latest Android fixes can also use the opportunity to deploy new apps if they are Lenovo custom Android ROM customers.
Android Marketplace and other Google App removal (*requires Google Approval)	Google Android apps are hard coded into Android and cannot be removed. Customers who wish to restrict access to their end users will want this feature.
Other app removal, including uninstalleable applications	App removal cannot be scripted. Customers without a Lenovo ITC custom ROM will need to uninstall manually. (Lenovo App Shop can remove apps that were installed through App Shop but cannot remove apps not installed by this method.)
Custom customer image will survive a hard reset.	If tablet needs a hard reset back to factory settings, a customer or BP developed image will be completely erased and the tablet becomes a consumer device again. A Lenovo ITC-developed custom ROM will revert back to the original Lenovo custom customer ROM because it is loaded into the firmware.
Custom MTM will only update to approved customer OTA updates	A customer can make sure that a “Coca-Cola” tablet will only update to an approved “Coca-Cola” image and ignore all others.
Custom icon placement	A customer or BP could manually place icons on specific screens in a specific order, but there is no way to automate this other than through Lenovo’s ITC Custom Android ROM services.

Lenovo Custom Android ROM Services Reduce Deployment Costs

Assumptions	Customer Manual Load and Configuration	Lenovo ITC Imaging Services with Asset Tagging
# of Machines in Pilot	1,000	
Salary for each Customer On-Staff Android Expert	\$125,000	
Number of Android Experts Needed by Customer	5	2
Customer "Image" Development and Testing (Months)	3	
Minutes to Configure Per Machine	30	0
Minutes of Box/Rebox Time at End Customer Configuration Center	5	0
Minutes to Tag Asset and Enter into Company Database	2	0
Productive Working Hours Per Day	8	8
Lenovo ITC Imaging Services Create and Load Image (Per Machine)		\$25
Lenovo Custom Asset Tagging		\$10
Customer Self-Generated and Provided Asset Tag	\$5	
Results		
"Image" Development Hours	520	52
"Image" Development Cost	\$31,250	\$3,125
Asset Tagging Cost	\$5,000	\$10,000
Deployment Minutes per Machine	37	0
Machines Deployable per Day	64.9	1,000
Days To Deploy Pilot	15	1
Cost to Deploy Pilot	\$ 73,310	\$ 38,125

Lenovo ITC Custom Android ROM Follows Familiar Process



No change to existing process used for custom images for notebooks or desktops

Lenovo Tablet Customers are Covered During Service Calls

Customer calls local toll free number to an onshore call center with the same award-winning Lenovo help desk team we have today and gets call answered in less than 1 minute.



Depot Repair – Lenovo pays for 3 legs of shipping including sending out the box. Tablets use the same depot repair centers that other Think products use.

Onsite Service – The process is 100% identical to other Think products. The same tech who can service PCs can service ThinkPad Tablets.



Lenovo Custom Tablet ROM customers are provided their image on a DVD so that customer support personnel can copy to an SD card for recovery.



No change to existing process used for notebooks and desktops

lenovo FOR
THOSE
WHO DO.

thank you grazie **merci** danke **grazias** 謝謝 **спасибо**
gracias **obrigado** ありがとう **dank** **takk** **bedankt** **dakujem**