Dell™ Latitude™ ST provided a better integration into a typical corporate environment

- Easier setup
- Reduced complexity
- Better integration into existing infrastructure
- Greater compatibility with common office applications and file types

versus Apple® iPad® 2 and Samsung Galaxy Tab™ 10.1

Tablet computers play an increasingly important role in today's enterprise workspace as more and more CIOs embrace them.[1] When you consider the capability and the portability of current tablets, such acceptance makes sense.

Tablets vary considerably in their ability to handle the everyday office tasks. Which tablet is easiest to use, lets you carry out your workflow most quickly, and offers the most complete functionality with commonly used applications and file types? To answer these questions, we tested the following three tablets and their respective operating systems on scenarios that enterprise workers regularly perform:

- Dell Latitude ST running Microsoft® Windows® 7 Professional
- Apple iPad 2 running iOS 5.0.1
- Samsung Galaxy Tab 10.1 running Google™ Android™ 3.2

In our tests in the Principled Technologies labs, the Dell Latitude ST running Microsoft Windows 7 Professional outpaced its competitors. Compared to the Apple iPad 2 and the Samsung Galaxy Tab 10.1, the Dell Latitude ST demonstrated the most complete functionality with commonly used applications and file types, which meant less time and fewer steps were necessary to perform the test scenarios. The speed and simplicity with which the Dell Latitude ST handled these tasks makes it an excellent tablet choice for an enterprise worker.

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[1] Tablet Demand and Disruption: Mobile Users Come of Age http://www.morganstanley.com/views/perspectives/tablets_demand.pdf

LOOKING UNDER THE HOOD

The top selling points of tablets are their compact size and touch-screen interfaces. If you expect a tablet to tackle many of the same workplace responsibilities your notebook handles with ease, you need to do your homework. Tablets vary considerably in their ability to handle the everyday office tasks.

We tested the Dell, Apple, and Samsung tablets from the mindset of an enterprise worker who needs a tablet that effectively handles the following tasks:

- Accessing shared data (common Microsoft Office apps) on a corporate file server
- Accessing shared data (common Microsoft Office apps) on a Microsoft SharePoint® server
- Printing files to a pre-existing networked printer
- Emailing (and opening attachments) using Microsoft Exchange
- Delivering a Microsoft PowerPoint® presentation (including note-taking and distribution)

Our testing for each tablet addressed whether it could complete each task, the number of steps and/or amount of time necessary to do so, and the quality of the experience (i.e., ease of use, readability, etc.). We care about the amount of user steps required because as this number increases, so does the complexity of the task and the risk of user error.

A BETTER USER EXPERIENCE WITH THE DELL LATITUDE ST

The Dell Latitude ST delivered the most complete functionality and was easier to use in all of our test scenarios. Figure 1 presents the time in seconds and the number of steps necessary to complete each scenario on the three tablets we tested. Less time and fewer steps are better.

Initial setup time and step comparison for each scenario			
Scenario	Dell Latitude ST	Apple iPad 2	Samsung Galaxy Tab 10.1
Accessing shared data on a file server	2 steps 00:45	4 steps 00:52	5 steps 00:43
Accessing shared data on a Microsoft SharePoint server	2 steps 00:48	4 steps 00:49	4 steps 00:52
Printing files to a networked printer	10 steps 1:04	11 steps 1:26	13 steps 1:19
Connecting to a Microsoft Exchange account	7 steps 00:44	8 steps 1:28	11 steps 2:56
Connecting to a projector to deliver a Microsoft PowerPoint presentation	1 step 00:09	2 steps 00:10	3 steps 00:14

Figure 1: The time in seconds and number of steps required for each scenario.

Figure 2 presents the number of compatibility issues that each tablet encountered during our test scenarios. Compatibility issues included the unavailability of applications using out-of-box configurations, applications not working with full functionality, and more. Fewer issues are better.

Number of compatibility issues with each scenario			
Scenario	Dell Latitude ST	Apple iPad 2	Samsung Galaxy Tab 10.1
Accessing shared data on a file server	0	9	8
Accessing shared data on a Microsoft SharePoint server	0	10	9
Printing files to a networked printer	0	15	9
Working with emails and attachments in Microsoft Exchange	0	9	7
Delivering a Microsoft PowerPoint presentation	0	2	3

Figure 2: The number of compatibility issues each tablet encountered for each scenario.

ADVANTAGES OF THE DELL LATITUDE ST IN EACH TEST SCENARIO

Accessing shared data on a file server

Accessing data on a company file server is a something enterprise workers do on a daily basis. To be a viable mobile computing solution, a tablet should allow for easy access of Microsoft Office files on file servers. In our test scenario, we saw how easily each tablet let us access a shared data directory and edit the various work-related documents (Word, PowerPoint®, and Excel® documents) stored on that directory.

The Dell Latitude ST tablet was preconfigured with Microsoft Office Professional 2010 and Adobe® Acrobat Reader® X. The Samsung Galaxy Tab 10.1 was preconfigured with Quickoffice® Pro HD. Each tablet started from a powered-on state. As with all our test scenarios, we were looking for basic compatibility, as well as for the quickest time, fewest steps, and overall quality of the experience.

Of the three tablets, the Dell Latitude ST delivered the best overall experience. Figure 3 shows the out-of-box results for each tablet.

Out-of-box file server share results		
Dell Latitude ST: 00:45 (2 steps)	Apple iPad 2: Incompatible	Samsung Galaxy Tab 10.1: Incompatible
1. Open Windows Explorer and type the path to the shared file directory. 2. Enter a username and password.	Fail	Fail
Issues encountered		
None	The Apple iPad 2 was unable to natively access the file share.	The Samsung Galaxy Tab 10.1 was unable to natively access the file share.

Figure 3: Out-of-box file-server share steps and issues for each tablet.

To enable the Apple iPad 2 to perform this test, we downloaded FileBrowser and Quickoffice HD Pro. To enable the Samsung Galaxy Tab 10.1 to perform this test, we downloaded ES File Explorer.

Figure 4 shows the server share results for each tablet, with FileBrowser for the Apple iPad 2 and ES File Explorer for the Galaxy Tab 10.1. Note that even with these applications, both the Apple iPad 2 and Galaxy Tab 10.1 encountered difficulties in this scenario, while the Dell Latitude ST did not.

File server share results		
Dell Latitude ST: **00:45 (2 steps)**	**Apple iPad 2:** **00:52 (4 steps)**	**Samsung Galaxy Tab 10.1:** **00:43 (5 steps)**
1. Open Windows Explorer and type the path to the shared file directory. 2. Enter username and password.	1. Open the FileBrowser application. 2. Click the + icon under Locations. 3. Enter the path of the shared file directory and the username and password, and click Save. 4. Touch the newly created Location to open the file share.	1. Open the ES File Explorer application. 2. From the top left dropdown menu, select LAN. 3. Click New and select Server. 4. Enter the file server IP address and enter username and password. 5. Touch the newly created location to open the file share.
Issues encountered		
None	1. PPT: Opening the file in Quickoffice caused the app to crash back to the Home screen. When viewed in the native viewer, only the slide deck pictures were shown. The notes that accompanied each slide were not rendered and the file could not be edited. 2. PPTX: It was not possible to edit the file. 3. PPTX: The slide animations did not work and were rendered on top of each other. 4. DOC: The graphic at the top of the document did not display. 5. DOC: The Table of Contents page links did not work. 6. DOCX: After the first frame appeared, it took over three minutes for the complete document to load, during which time the tablet was unresponsive. 7. DOCX: Comments were not shown.	1. PPT: Upon opening, only the slide deck pictures were shown. When we selected the edit pen, the notes became visible. 2. PPTX: The slide animations did not work and were rendered on top of each other. 3. DOC: The graphic at the top of the document did not display. 4. DOC: The Table of Contents page links did not work. 5. DOCX: Comments were not shown. 6. DOCX: Tracked changes were not shown. 7. XLSX: Was not able to open file. We received an "Unable to display file due to insufficient memory" message. 8. XLS: The majority of the spreadsheet failed to render. 1,702 rows filled with data failed to appear, and there were

File server share results		
	Instead of comments, two strange type characters (gibberish) were displayed where the comments had been made. 8. DOCX: Tracked changes were not shown, but entries, deleted content, and new content were shown together. 9. XLSX: The file took over three minutes to load. During that time, the tablet was unresponsive.	calculating errors in the spreadsheet.

Figure 4: Steps and issues each tablet requires to connect to a file server share. Fewer steps are better.

Accessing shared data on a Microsoft SharePoint server

Accessing data on a company or Microsoft SharePoint file server is an everyday occurrence for enterprise workers. To be a viable mobile computing solution, a tablet should allow for easy access of Microsoft Office files on file servers. In our test scenario, we evaluated how well each tablet allowed us to view Microsoft Word, Excel, and PowerPoint files on a SharePoint server. As with all our test scenarios, we were looking for basic compatibility, as well as for the quickest time, fewest steps, and overall quality of the experience.

The Dell Latitude ST tablet was preconfigured with Microsoft Office Professional 2010 and Adobe Acrobat Reader X. The Samsung Galaxy Tab 10.1 was preconfigured with Quickoffice Pro HD. Each tablet started from a powered-on state.

Of the three tablets, the Dell Latitude ST delivered the best overall experience. Figure 5 shows the out-of-box results for each tablet.

Out-of-box SharePoint server share results		
Dell Latitude ST: 00:48 (2 steps)	**Apple iPad 2: 00:32 (2 steps)**	**Samsung Galaxy Tab 10.1: Incompatible**
1. Open the Web browser, and type the path to the SharePoint shared file directory. 2. Enter username and password.	1. Open the Web browser, and type the path to the SharePoint shared file directory. 2. Enter username and password.	Fail

Out-of-box SharePoint server share results		
Issues encountered		
None	1. The Apple iPad 2 was unable to edit the files. 2. PPT: Only the slide deck pictures were shown. The notes that accompanied each slide were not rendered. 3. PPTX: The slide animations did not work and were rendered on top of each other. 4. DOC: Table of Contents page did not work properly. We used the table of contents to skip ahead, and then when we tried to "go back" the top of the page was cut off and formatting became an issue with a random Microsoft logo placed on the right hand side covering part of a word. 5. DOCX: Comments were not shown. 6. DOCX: Tracked changes were not shown. 7. XLS: The $ sign formatting was lost.	The Samsung Galaxy Tab 10.1 was unable to natively access the SharePoint share. We received a "Webpage is not available" message when we tried.

Figure 5: Out-of-box SharePoint server share steps and issues for each tablet.

To enable the Apple iPad 2 to edit the files for this test, we downloaded Quickoffice Pro HD. To enable the Samsung Galaxy Tab 10.1 to do this test, we downloaded SharePlus-SharePoint Client.

Figure 6 shows the SharePoint server share results for each tablet, with Quickoffice Pro HD and SharePlus Pro for the Apple iPad 2 and SharePlus-SharePoint Client for the Samsung Galaxy Tab 10.1. Note that even with these applications, the Apple iPad 2 and the Samsung Galaxy Tab 10.1 encountered difficulties in this scenario. The Dell Latitude ST did not.

SharePoint server share results		
Dell Latitude ST: **00:48 (2 steps)**	**Apple iPad 2:** **00:49 (4 steps)**	**Samsung Galaxy Tab 10.1:** **00:52 (4 steps)**
1. Open the Web browser, and type the path to the SharePoint shared file directory. 2. Enter username and password.	1. Open the SharePlus Pro application. 2. Click the + to add a SharePoint site. 3. Enter the SharePoint server information into the fields, and click Done. 4. Click the SharePoint site that was just created.	1. Open the SharePlus-SharePoint Client application. 2. Click the + to add a SharePoint site. 3. Enter the SharePoint server information into the fields, and click Done. 4. Click the SharePoint site that was just created.
Issues encountered		
None	1. It was possible to view and open the files using the SharePlus Pro application, but editing had to be done using Quickoffice HD Pro. 2. Opening the file in Quickoffice caused the app to crash back to the Home screen. When viewed in the native viewer, only the slide deck pictures were shown. The notes that accompanied each slide were not rendered and the file could not be edited. 3. PPTX: We were unable to edit the file in Quickoffice. When the file opened in Quickoffice, a message appeared that said. "Cannot Edit File. Only viewing and presenting are currently supported for 2007 and 2010 PowerPoint files." 4. PPTX: The slide animations did not work and were rendered on top of each other. 5. DOC: The Table of Contents page links did not work. 6. DOC: The graphic at the top of the document did not display. 7. DOCX: After the first frame appeared, it took over three minutes for the complete document to load, during which time the tablet was unresponsive. 8. DOCX: Comments were not shown. Instead of comments, two strange	1. It was possible to view the files using the SharePlus-SharePoint Client application, but editing had to be done using Quickoffice HD Pro. 2. PPT: Upon opening, only the slide deck pictures were shown. When we selected the edit pen, the notes became visible. 3. PPTX: The slide animations did not work and were rendered on top of each other. 4. DOC: The Table of Contents page links did not work. 5. DOC: The graphic at the top of the document did not display. 6. DOCX: Comments were not shown. 7. DOCX: Tracked changes were not shown. 8. XLSX: Was not able to open file. We received an "Unable to display file due to insufficient memory" message. 9. XLS: The majority of the spreadsheet failed to render. 1,702 rows filled with data failed to appear, and there were calculating errors in the spreadsheet.

SharePoint server share results
type characters (gibberish) were displayed where the comments had been made. 9. DOCX: Tracked changes were not shown, but entries, deleted content, and new content were shown together. 10. XLSX: The file took over three minutes to load. During that time, the tablet was unresponsive.

Figure 6: Steps and issues each tablet requires to connect to a SharePoint server share. Fewer steps are better.

Printing files to a networked printer

Printing documents to a networked printer is a basic task that users expect their computers to handle without difficulty. Here, we tested each tablet's ability to print documents of common file types (.pdf and .doc) to a networked Dell 1350cnw printer.

The Dell Latitude ST tablet was preconfigured with Microsoft Office Professional 2010 and Adobe Acrobat Reader X. The Samsung Galaxy Tab 10.1 was preconfigured with Quickoffice Pro HD. Each tablet started from a powered-on state.

The Dell Latitude ST was able to print to a networked printer out of the box, while the Apple iPad 2 and the Samsung Galaxy Tab 10.1 were unable to do so. Figure 7 shows the out-of-box results for each tablet.

Out-of-box printing to a networked printer results		
Dell Latitude ST: 1:04 (10 steps)	Apple iPad 2: Incompatible	Samsung Galaxy Tab 10.1: Incompatible
1. Select Start→Devices and Printers. 2. Select Add a Printer. 3. Select Add a network, wireless or Bluetooth printer. 4. Select the printer that I want isn't listed. 5. Select Add a printer using TCIP/IP address or a hostname, and click Next. 6. Enter the IP address for the printer, and click Next. 7. Select the printer, and click Next. 8. Type a Printer name, and click Next. 9. At the Printer Sharing screen,	Fail	Fail

Out-of-box printing to a networked printer results		
leave the default option of sharing the printer, and click Next. 10. Click Finish when the setup is complete.		
Issues encountered		
None	The Apple iPad 2 was unable to natively print to the pre-existing network printer.	The Samsung Galaxy Tab 10.1 was unable to natively print to the pre-existing network printer.

Figure 7: Out-of-box printing to a networked printer steps and issues for each tablet.

To enable the Apple iPad 2 to do this test, we downloaded PrintCentral Pro. To enable the Galaxy Tab 10.1 to do this test, we downloaded PrinterShare Premium.

Figure 8 shows the printing to a networked printer results for each tablet, with Quickoffice Pro HD for the Apple iPad 2 and SharePlus-SharePoint Client for the Galaxy Tab 10.1. Note that even with these applications, the Apple iPad 2 and Samsung Galaxy Tab 10.1 encountered difficulties in this scenario. The Dell Latitude ST did not.

Printing to a networked printer results		
Dell Latitude ST: 1:04 (9 steps)	**Apple iPad 2: 1:26 (11 steps)**	**Samsung Galaxy Tab 10.1: 1:19 (13 steps)**
1. Select Start→Devices and Printers. 2. Select Add a Printer. 3. Select Add a network, wireless or Bluetooth printer. 4. Select The printer that I want isn't listed. 5. Select Add a printer using TCIP/IP address or a hostname, and click Next. 6. Enter the IP address for the printer, and click Next. 7. Select the printer, and click Next. 8. At the Printer Sharing screen, leave the default option of sharing the printer, and click Next. 9. Click Finish when the setup is complete.	1. On a pre-existing Windows computer that has access to the network printer, go to http://mobile.eurosmartz.com and download the WePrint software. 2. Install the WePrint software onto the Windows machine by double-cllicking the WePrint executable. 3. Click Install. 4. At the license agreement, click Agree. 5. Click OK, to launch WePrint. 6. When WePrint launches, accept the default settings, and click OK. 7. Choose a folder to use for file sharing, and click OK. 8. On the tablet, open the PrintCentral Pro app. 9. Select and open the Getting Started-Test Print file.txt. 10. Select the Print button at the top right.	1. On a pre-existing Windows computer that has access to the network printer, go to www.printershare.com and download the Windows PrinterShare software. 2. Install the PrinterShare software onto the Windows machine, by double-clicking the PrinterShare executable. 3. At the Welcome screen, click Next. 4. Accept the license agreement, and click Next. 5. Accept the default Setup path, and click Next. 6. Click Install. 7. Check the box to Start PrinterShare Console, and click Finish. 8. Click Next to install Bonjour. 9. Click Finish when Bonjour installs.

Printing to a networked printer results		
	11. Select the WePrint shared printer option.	10. Select the printer that is to be shared from the list shown under local printers, and click Share. 11. On the tablet, open the PrinterShare app. 12. Click the list option at the bottom of the screen, and select Nearby Printers. 13. When the shared printer is detected, select it.
Issues encountered		
None	1. We were unable to print to the pre-existing printer using the built-in application drivers. 2. To get Print Central Pro to work with the pre-existing network printer, it was necessary to install WePrint software on a pre-existing Windows machine that could connect to the network printer. This meant that it was necessary to have a separate Windows machine always running to allow access to the printer. In our opinion, this is not ideal for corporate environments. 3. We had to open and print the documents out using the Print Central Pro application. We could not print from Quickoffice. 4. PDF: Compared to the Dell tablet, the printed output was smaller. 5. PDF: Compared to the Dell tablet, the printed output was in portrait mode instead of landscape mode. 6. DOC: Compared to the Dell tablet, the colorful top border looked faded and appeared only on page 1. 7. DOC: Compared to the Dell tablet, the printed type was much larger. 8. DOC: Compared to the Dell tablet, many of the footer elements did not print. 9. DOC: Compared to the Dell tablet,	1. We were unable to print to the pre-existing printer using the built-in application drivers. 2. To get PrinterShare to work with the pre-existing network printer, it was necessary to install PrinterShare software on a pre-existing Windows machine that could connect to the network printer. This meant that it was necessary to have a separate Windows machine always running to allow access to the printer. In our opinion, this is not ideal for corporate environments. 3. We had to open and print the documents out using the PrinterShare application. We could not print from Quickoffice. 4. PDF: Compared to the Dell tablet, the printed output was slightly smaller. 5. Compared to the Dell tablet, the printed output was justified to the left. 6. DOC: Compared to the Dell tablet, the printed output type was smaller. 7. DOC: Compared to the Dell tablet, the Company Logo footing was missing. 8. DOC: Compared to the Dell tablet, the Table of Contents was

Printing to a networked printer results		
	the Table of Contents ….. lines did not print. 10. DOC: Compared to the Dell tablet, the Table of Contents page numbers did not print properly; rather than being lined up on the right side, they were all over the place. 11. DOC: Compared to the Dell tablet, the Table of Contents was colored blue and underlined similar to how hyperlinks are underlined. 12. DOC: The missing footing appeared randomly on top of text in the document. 13. DOC: Page numbers were missing. 14. DOC: Headings were the wrong size. 15. DOC: There were double spacing issues inside paragraphs.	colored blue and underlined similar to how hyperlinks are underlined. 9. DOC: Some apostrophes and hyphens were rendered as small rectangles.

Figure 8: Steps and issues each tablet requires to print to a networked printer. Fewer steps are better.

Working with emails in Microsoft Exchange

The importance of email to corporate communication is obvious. Equally important as reading, writing, and sending emails is opening the attachments that often accompany them. We tested the ability of each tablet to read, create, and send with emails using Microsoft Exchange, and to open common Microsoft Office files as email attachments.

The Dell Latitude ST tablet was preconfigured with Microsoft Office Professional 2010 and Adobe Acrobat Reader X. The Samsung Galaxy Tab 10.1 was preconfigured with Quickoffice Pro HD. Because the Apple iPad2 did not have Quickoffice installed, we were unable to edit email files on it. For this test, we set up a separate email test system to send and receive emails to and from each tablet. We created a formatted an email test message that contained a heading, Web site link, bullet points, and a table with number results and color formatting. Each tablet started from a powered-on state and was connected to the wireless network through DHCP. The Dell tablet was logged into the local domain.

The Dell Latitude ST handled this process better than the Apple iPad 2 or the Samsung Galaxy Tab 10.1. Figure 9 presents the out-of-box results for each tablet.

Out-of-box Email and email attachment results		
Dell Latitude ST: **00:44 (7 steps)**	**Apple iPad 2:** **1:28 (8 steps)**	**Samsung Galaxy Tab 10.1:** **2:56 (11 steps)**
1. Open Microsoft Outlook. 2. At Microsoft Outlook 2010 Startup, click Next. 3. Click Next to configure an E-mail account. 4. At Auto Account Setup, click Next. 5. At the Configuring screen, click Finish. 6. Enter Name and Initials, and click OK. 7. At the Help Protect and Improve Microsoft Office screen, select the Use Recommended Settings radio button, and click OK. By default, Outlook 2010 will sync all messages on the server.	1. Open the Mail application. 2. Select Microsoft Exchange. 3. Manually enter Email address. 4. Manually enter Domain name. 5. Manually enter Username. 6. Manually enter Password, and click Next. 7. Manually enter name of Exchange server, and click Next. 8. Click Save to sync Mail, Contacts, Calendars, and Reminders. By default, Mail will sync messages up to three days old in the Inbox folder.	1. Open the Mail application. 2. Manually enter Email address. 3. Manually enter Password, and click Next. 4. At the What type of account screen, click Microsoft Exchange Activesync. 5. Manually enter Domain name, and click Next. 6. At the Setup could not finish screen, click Edit details. 7. Modify name of Exchange server, and click Next. 8. At Activation, click OK. 9. At Remote security administration, click OK. 10. Select the checkbox next to Send email from this account by default, and click Next. 11. At the Activate device administrator screen, click Activate. By default, Mail will sync messages up to three days old in the Inbox folder.
Issues encountered		
None	1. We were unable to edit the files. 2. PPT: Only the slide deck pictures were shown. The notes that accompanied each slide were not rendered. 3. PPTX: The slide animations did not work and were rendered on top of each other. 4. DOC: Table of Contents page did not work properly. We used the table of contents to skip ahead, and then when we tried to "go back" the top of the page was cut off and formatting became an issue with a random Microsoft logo placed on the right hand side covering part of a word. 5. DOCX: Comments were not	1. PPT: Upon opening, only the slide deck pictures were shown. When we selected the edit pen, the notes became visible. 2. PPTX: The slide animations did not work and were rendered on top of each other. 3. DOC: The Table of Contents page links did not work. 4. DOCX: Comments were not shown. 5. DOCX: Tracked changes were not shown. 6. XLSX: Was not able to open file. We received an "Unable to display file due to insufficient memory" message. 7. XLS: The majority of the

Out-of-box Email and email attachment results		
	shown. 6. DOCX: Tracked changes were not shown. 7. DOCX: After the first frame appeared, it took over three minutes for the complete document to load, during which time the tablet was unresponsive. 8. XLS: Intermittently, the file would not open, and the iPad would simply return to the home screen. 9. XLS: The $ sign formatting was lost.	spreadsheet failed to render. 1,702 rows filled with data failed to appear, and there were calculating errors in the spreadsheet.

Figure 9: Out-of-box email and email attachment steps and issues for each tablet. Fewer steps are better.

Delivering a PowerPoint presentation

Because Microsoft PowerPoint is a popular application for presentations, we tested the ability of each tablet to deliver a PowerPoint presentation. This process included connecting the tablet to a Pico projector via HDMI to display the PowerPoint deck, taking notes onscreen, and distributing these notes to participants.

The Dell Latitude ST tablet was preconfigured with Microsoft Office Professional 2010. The Samsung Galaxy Tab 10.1 was preconfigured with Quickoffice Pro HD. Each tablet started from a powered-on state and with the projector powered on.

The Dell Latitude ST accomplished these tasks better than either the Apple iPad 2 or the Samsung Galaxy Tab 10.1. Figure 10 presents the out-of-box results for each tablet.

Out-of-box PowerPoint presentation results		
Dell Latitude ST: 00:09 (1 step)	Apple iPad 2: Incompatible	Samsung Galaxy Tab 10.1: Incompatible
1. Connect one end of the HDMI cable into the projector HDMI port and the other end into the Dell tablet HDMI port.	Fail	Fail
Issues encountered		
None	The Apple iPad 2 was unable to natively connect via HDMI to the projector without a separately purchased adapter.	The Samsung Galaxy Tab 10.1 was unable to natively connect via HDMI to the projector without a separately purchased adapter.

Figure 10: Out-of-box PowerPoint presentation steps and issues for each tablet.

To enable the Apple iPad 2 and Samsung Galaxy Tab 10.1 to complete the task, we had to purchase a separate HDMI adapter from Apple and Samsung. We used Quickoffice HD Pro on both tablets to display the PowerPoint presentation.

Figure 11 shows the results. Even with the HDMI adapter, the Apple iPad 2 and Samsung Galaxy Tab 10.1 encountered difficulties. The Dell Latitude ST did not.

PowerPoint presentation results		
Dell Latitude ST: 00:09 (1 step)	Apple iPad 2: 00:10 (2 steps)	Samsung Galaxy Tab 10.1: 00:14 (3 steps)
1. Connect one end of the HDMI cable into the projector HDMI port and the other end into the Dell tablet HDMI port.	1. Connect the Apple Digital AV Adapter to the tablet. 2. Connect one end of the HDMI cable into the projector HDMI port and the other end into the Apple Digital AV Adapter port.	1. Connect the Samsung HDTV Adapter to the tablet. 2. Connect the Samsung Galaxy Tab 10.1 power adapter to the Samsung HDTV Adapter. 3. Connect one end of the HDMI cable into the projector HDMI port and the other end into the Samsung HDTV Adapter port.
Issues encountered		
None	1. The slide animations did not work and were rendered on top of each other. 2. It was not possible to take notes during the presentation.	1. The Samsung HDTV Adapter was required to be plugged into an external power source to work. 2. The slide animations did not work and were rendered on top of each other. 3. It was not possible to take notes during the presentation.

Figure 11: Steps and issues each tablet requires to deliver a PowerPoint presentation and connect to a Pico projector. Fewer steps are better.

CONCLUSION

Because the Dell Latitude ST is a Windows 7-based tablet, it had the clear advantage over the Apple iPad 2 and Samsung Galaxy Tab 10.1 when working with common Microsoft Office applications. Less need for middleware means fewer user steps, which reduces complexity and the risk of user error, and also reduces the risk of compatibility problems with common workplace applications. For enterprise workers hoping to make a seamless transition from a notebook computer to a tablet to perform their daily tasks, the Dell Latitude ST brings substantial advantages over its competitors.

APPENDIX A – TEST TABLET CONFIGURATION

Figure 12 provides detailed configuration information for the tablets we tested.

System	Dell Latitude ST	Apple iPad 2	Samsung Galaxy Tab 10.1
General			
Number of processor packages	1	1	1
Number of cores per processor	1	2	2
Number of hardware threads per core	2	1	1
System dimensions (length x width x height)	10.6" x 7.3" x 0.59"	9.5" x 7.3" x 0.34"	10.1" x 6.8" x 0.34"
System weight	1 lb. 8 oz.	1 lb. 3 oz.	1 lb. 3 oz.
CPU			
Vendor	Intel®	Apple	NVIDIA®
Model number	Atom™ Z670	A5	Tegra® 2
Core frequency (GHz)	1.5	1	1
L1 cache	24 KB + 32 KB	32 KB + 32 KB	32 KB + 32 KB
L2 cache	512 KB	1 MB	1 MB
Memory module(s)			
Amount of RAM	2 GB	512 MB	1 GB
Type	DDR2-800 MHz	DDR2-533 MHz	DDR2-667 MHz
Hard disk			
Vendor and model number	Samsung PM810 SSD	Flash storage	Flash storage
Size (GB)	32	32	32
Operating system			
Name	Microsoft Windows 7 Professional	Apple iOS 5.0.1	Google Android 3.2 Honeycomb
Graphics			
Vendor and model number	Intel GMA 600	PowerVR SGX543MP2	NVIDIA Tegra 250 T20
Resolution	1,280 x 800	1,024 x 768	1,280 x 800
Display			
LCD type	WXGA Wide Viewing Angle LED with chemically strengthened glass, Pen & Touch Input	LED-backlit glossy widescreen Multi-Touch display with IPS technology	WXGA TFT LCD
Screen size (inches)	10.1	9.7	10.1
Battery			
Type	Built-in Lithium Ion	Built-in Lithium Ion	Built-in Lithium Ion
Rated Watt hours	30	25	25

Figure 12: Configuration information for the tablets we tested.

APPENDIX B - TEST PROCESS

Scenario 1: Accessing shared data on a file server

1. Open Windows Explorer, and type the path to the shared file directory.
2. Open the test PowerPoint (PPT) file. Note any formatting issues.
3. Close the test file.
4. Open the test PowerPoint (PPTX) file. Note any formatting issues.
5. Close the test file.
6. Open the test Word (DOC) file. Note any formatting issues.
7. Close the test file.
8. Open the test Word (DOCX) file. Note any formatting issues.
9. Close the test file.
10. Open the test Excel (XLS) file. Note any formatting issues.
11. Close the test file.
12. Open the test Excel (XLSX) file. Note any formatting issues.
13. Close the test file.
14. Open the test Adobe Acrobat (PDF) file. Note any formatting issues.
15. Close the test file.

Scenario 2: Accessing shared data on a Microsoft SharePoint server

1. Open the Web browser, and type the path to the SharePoint shared file directory.
2. Open the test PowerPoint (PPT) file. Note any formatting issues.
3. Close the test file.
4. Open the test PowerPoint (PPTX) file. Note any formatting issues.
5. Close the test file.
6. Open the test Word (DOC) file. Note any formatting issues.
7. Close the test file.
8. Open the test Word (DOCX) file. Note any formatting issues.
9. Close the test file.
10. Open the test Excel (XLS) file. Note any formatting issues.
11. Close the test file.
12. Open the test Excel (XLSX) file. Note any formatting issues.
13. Close the test file.
14. Open the test Adobe Acrobat (PDF) file. Note any formatting issues.
15. Close the test file.

Scenario 3: Printing to a networked printer

Printing a PDF file

1. From the tablet, open the test PDF file.
2. Print the test PDF file.
3. Note any issues.

Printing a Word Document

1. From the tablet, open the test DOC file.
2. Print the test DOC file.
3. Note any issues.

Scenario 4: Emailing and opening attachments

1. From the tablet, open the mail client.
2. From the email test system, prepare the formatting test message.
3. From the email test system, send the formatted email. View the email and note any formatting issues.
4. From the tablet, click Reply to the formatting message. Enter the text Test message received.
5. Click Send. When the email appears in email test system's inbox, view the email and note any formatting issues.
6. From the email test system, prepare the PowerPoint (PPT) attached file test message.
7. From the email test system, send the PowerPoint PPT file.
8. From the tablet, open the test PowerPoint (PPT) file and note any formatting issues.
9. Close the test file.
10. From the email test system, prepare the PowerPoint (PPTX) attached file test message.
11. From the email test system, send the PowerPoint (PPTX) file.
12. From the tablet, open the test PowerPoint (PPTX) file and note any formatting issues.
13. Close the test file.
14. From the email test system, prepare the test Word (DOC) file.
15. From the email test system, send the Word (DOC) file.
16. From the tablet, open the test Word (DOC) file and note any formatting issues.
17. Close the test file.
18. From the email test system, prepare the test Word (DOCX) file.
19. From the email test system, send the Word (DOCX) file.
20. From the tablet, open the test Word (DOCX) file and note any formatting issues.
21. Close the test file.
22. From the email test system, prepare the test Excel (XLS) file.
23. From the email test system, send the Excel (XLS) file.
24. From the tablet, open the test Excel (XLS) file and note any formatting issues.
25. Close the test file.
26. From the email test system, prepare the test Excel (XLSX) file.
27. From the email test system, send the Excel (XLSX) file.
28. From the tablet, open the test Excel (XLSX) file and note any formatting issues.
29. Close the test file.
30. From the email test system, prepare the test Adobe Acrobat (PDF) file.
31. From the email test system, send the Adobe Acrobat (PDF) file.
32. From the tablet, open the test Adobe Acrobat (PDF) file and note any formatting issues.
33. Close the test file.

Scenario 5: Delivering a Microsoft PowerPoint presentation

1. From the tablet, open the PowerPoint presentation.
2. Start the presentation.
3. Click through the first 10 slides and note any formatting issues.
4. Using the pen option, make notes on one of the PowerPoint slides. Note any issues.
5. Email the edited slide deck to another test computer. Note any issues.

ABOUT PRINCIPLED TECHNOLOGIES

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We provide industry-leading technology assessment and fact-based marketing services. We bring to every assignment extensive experience with and expertise in all aspects of technology testing and analysis, from researching new technologies, to developing new methodologies, to testing with existing and new tools.

When the assessment is complete, we know how to present the results to a broad range of target audiences. We provide our clients with the materials they need, from market-focused data to use in their own collateral to custom sales aids, such as test reports, performance assessments, and white papers. Every document reflects the results of our trusted independent analysis.

We provide customized services that focus on our clients' individual requirements. Whether the technology involves hardware, software, Web sites, or services, we offer the experience, expertise, and tools to help our clients assess how it will fare against its competition, its performance, its market readiness, and its quality and reliability.

Our founders, Mark L. Van Name and Bill Catchings, have worked together in technology assessment for over 20 years. As journalists, they published over a thousand articles on a wide array of technology subjects. They created and led the Ziff-Davis Benchmark Operation, which developed such industry-standard benchmarks as Ziff Davis Media's Winstone and WebBench. They founded and led eTesting Labs, and after the acquisition of that company by Lionbridge Technologies were the head and CTO of VeriTest.