Mobile Revolution

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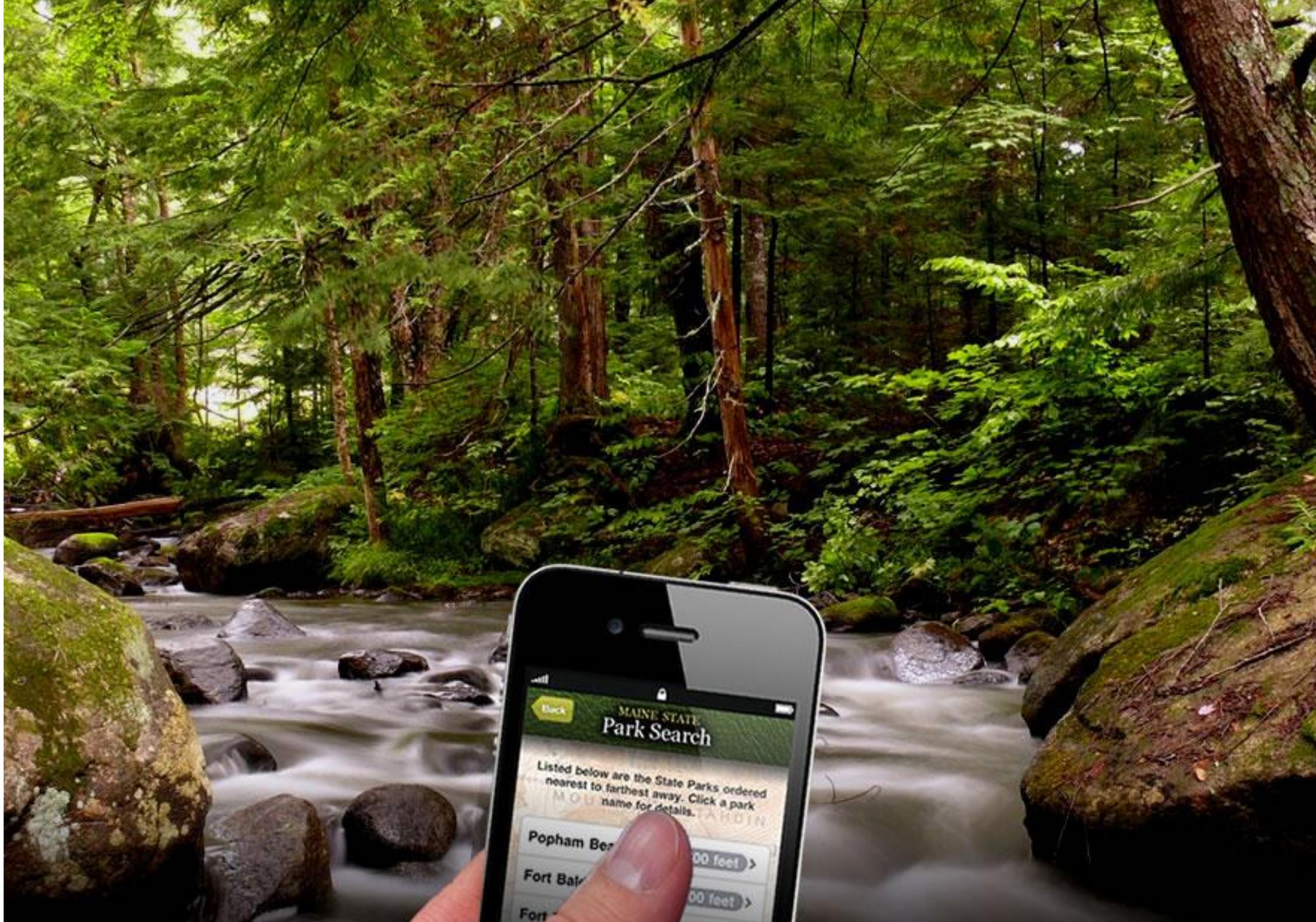
Are You Ready for the Mobile Revolution?

The Facts

More and more people are purchasing Smartphone's and tablets each year. Owners of these devices are beginning to rely more heavily on them for a wider variety of uses, causing mobile web traffic to increase dramatically.

Internet use on mobile devices is currently growing so quickly that it's beginning to overtake internet use on laptops and desktops.

Understanding the Mobile Revolution

The Stats

- There are over 1 billion Smartphone's worldwide today

- Smartphone's already outnumber feature phones in the US

- An estimated 1.2 billion smart devices will be purchased in 2013

- Internet page views on Smartphone's and tablets have doubled this past year alone

- Twenty-five percent of US internet users are mobile-only

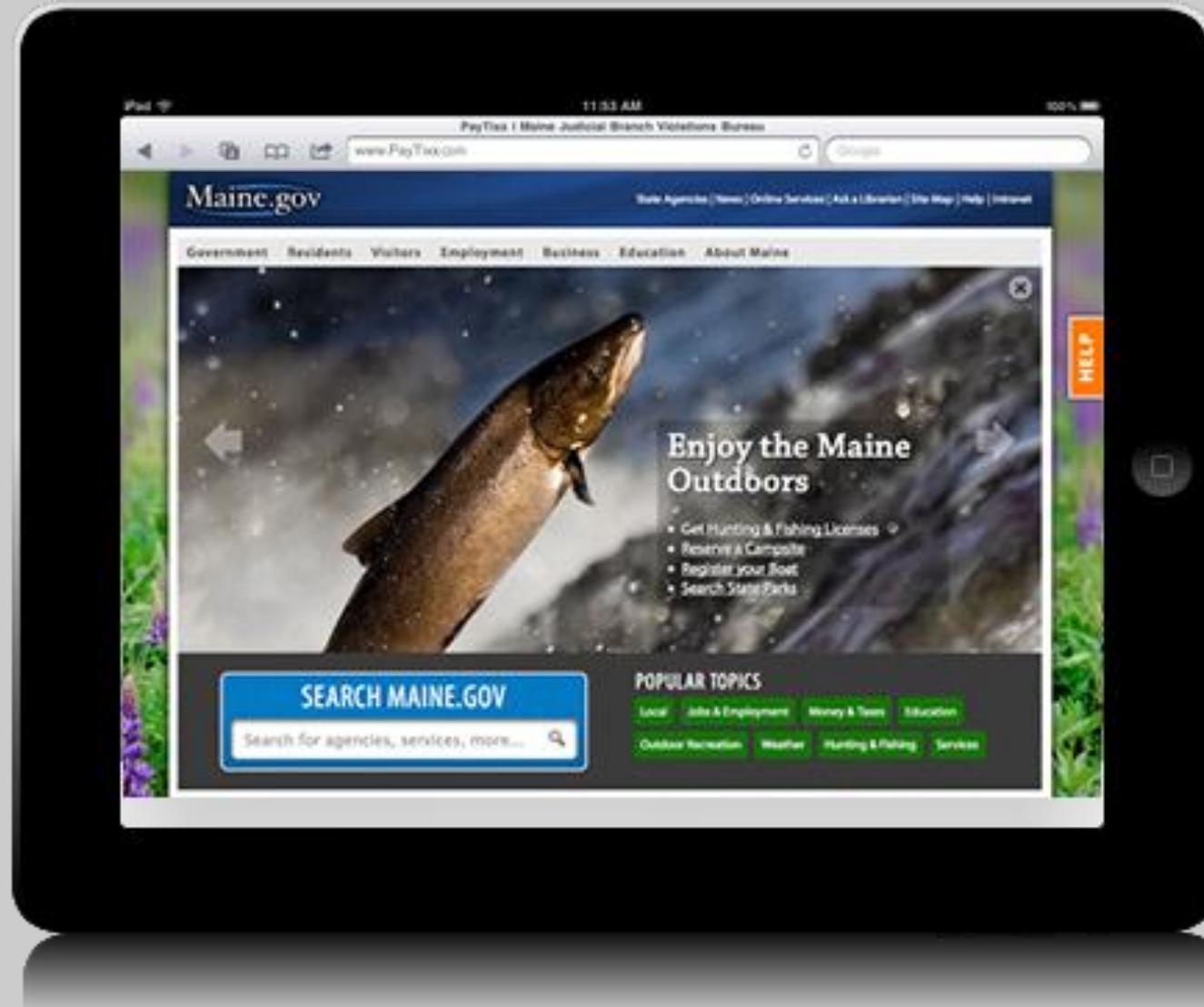- A third of IT shops support personal Smartphone's, tablets at work

Understanding the Mobile Revolution

The Stats

- It takes 90 minutes for the average person to respond to an email. It takes **90 seconds** for the average person to respond to a text message.

- **70% of all mobile searches** result in action within 1 hour.

- Mobile coupons get **10 times the redemption rate** of traditional coupons.

- There are **more mobile phones** on the planet than there are TVs.

- **91% of all U.S. citizens** have their mobile device within reach 24/7.

(Source for statistics mentioned above: Mobile Marketing Association)

Understanding the Mobile Revolution

How do you keep up?

Responsive Design

A web application template with responsive design technology automatically allows for the rendering of web pages dynamically based on the user's screen resolution.

This would allow for Government websites and their new applications to be easily viewed using a wide variety of Smartphone's and handheld devices, removing the need for separate mobile content.

Mobile
480px

5

→|←25 % of column width

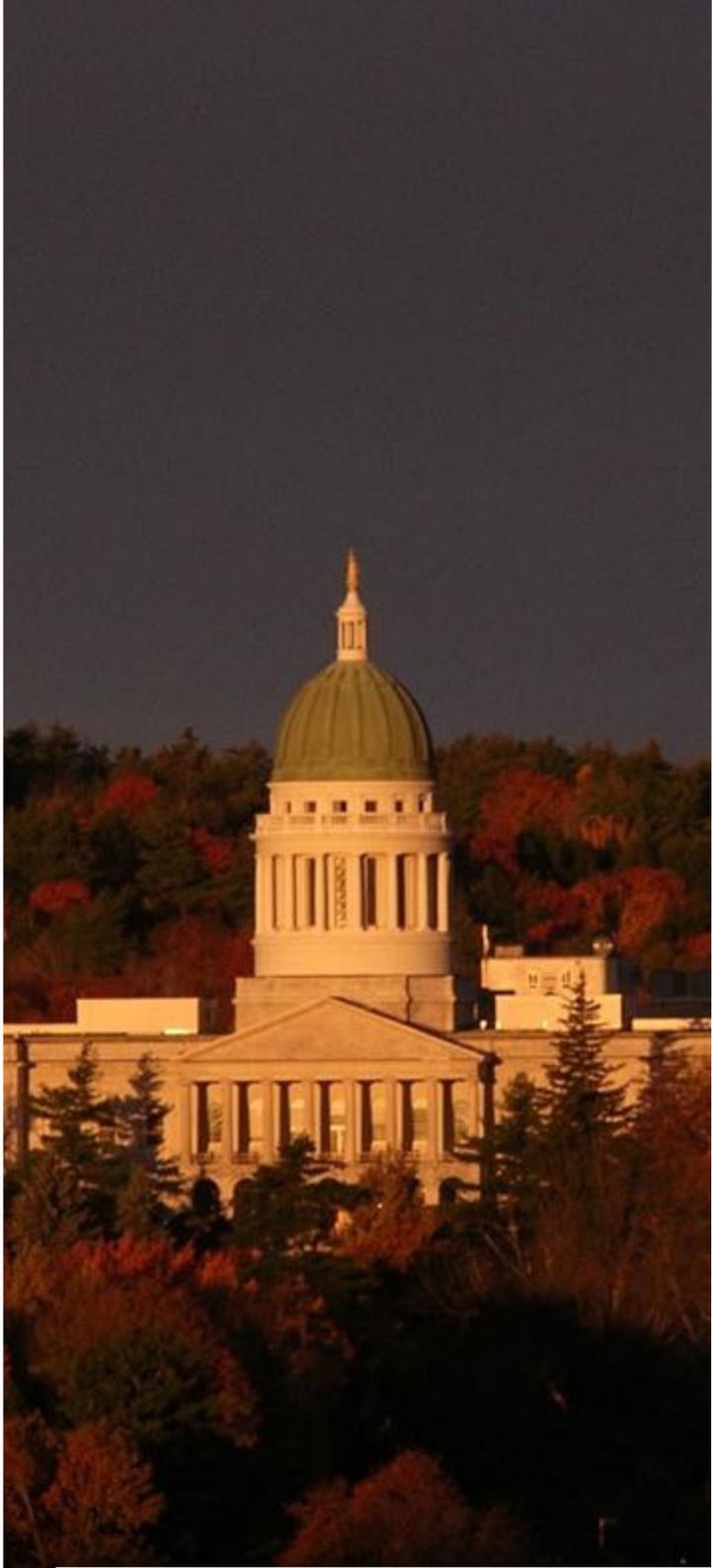Tablet
768px

8

←93 %→

Desktop
1232px

10

←90 %→

Responding to the Mobile Revolution

Mobile Readiness

With mobile technology evolving so quickly over the last few years, it is becoming critical for Government to have a mobile friendly website and presence.
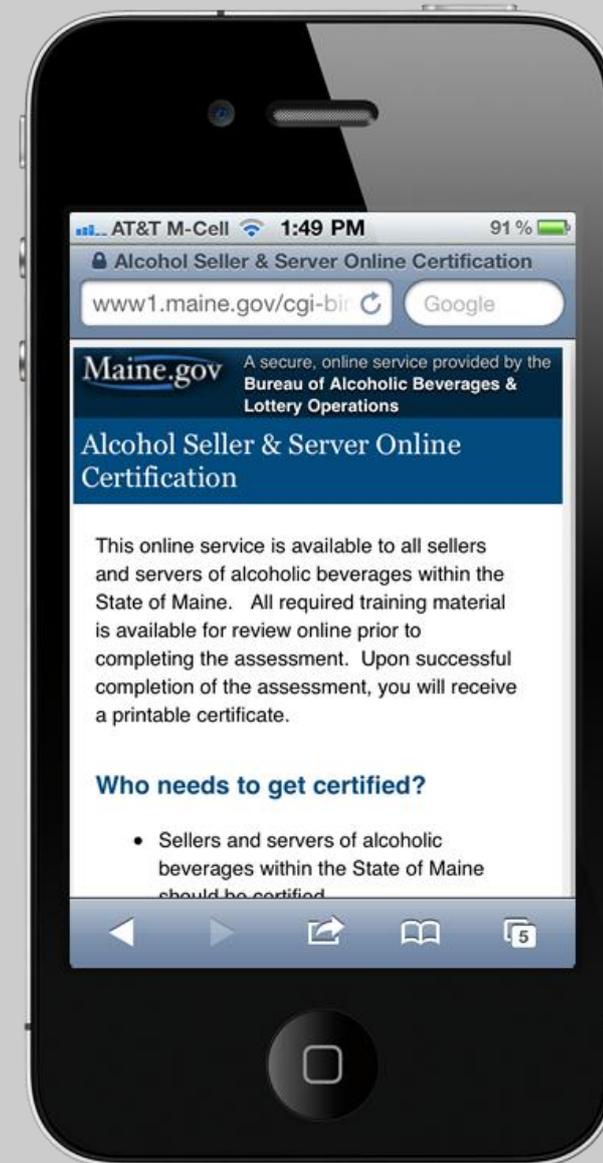
Responding to the Mobile Revolution

Government Apps

Applications for citizens need to be within reach and ready for them when they need access the most.

Access goes beyond the office, the home and most importantly without having to be in front of a desktop of laptop.

Responding to the Mobile Revolution

Applications At Your Fingertips

- Professional License Lookups

- Parks and Recreation Searches

- 311 Services

- Game/Harvest Reporting

- Mobile Inspections

- Branch Time Lookups

- Voter Registration

- Suspicious Activity Reporting

- Unclaimed Property Lookup

- Practice Driver Tests

- Court Hearings Schedule

- Transparency

- Business Entity Searches

- Find an Agency/Person

- Agency News/Events

- Financial Aid

- Sex Offender Searches

Responding to the Mobile Revolution

Corporate Trends

- Computing & communication devices becoming more convergent & commoditized.

- Usage increasingly spans work and the rest-of-life.

- Users forcing their own end-points into the Corporate Network.

- No reimbursement from corporate use of personal devices.

- Increases burden on Corporate IT: Cannot support personal devices.

- Increases security risks to the Corporate Network.

- Government has higher legal obligation than corporate: FOAA & Citizen Privacy.

- The demand starts with "just" email & calendar, or fieldwork. But soon, it expands to all other apps & all corporate data.

Challenges

- Accommodate myriad devices

- Accommodate myriad form factor and connectivity combos

- "Limited Support" for myriad devicesId, register (onboard), and manage personal endpoints on the corp NW

- FOAA

- Security & Privacy

- Labor Laws

Bring Your Own Device

- Managed Diversity: Allow certain personal devices under certain circumstances, with notification of risks, liabilities, etc.

- Requires dedicated Policy, Infrastructure, Funding, & Support.

- Three most promising platforms: Apple iOS, Google Android, Windows 6.5/7/8.

- BlackBerry & Symbian's future are uncertain.

- Mobile Device Manager req: Unified policy enforcement, Unified registration, Wipe on-demand, End-to-end dynamic encryption, etc.

- MDM Vendors: SAP-Sybase Afaria, MaaS360, AirWatch, MobileIron, Zenprise, Good, Notify, etc.

- Feature Competition: Device Portfolio, Security, Ease of Management, Inventory Management, Jailbreak Alert, etc.

Bring Your Own Device

- Rules: Device Registration & Onboarding, Agree to State/Corporate FOAA, Information Security, Wipe on-demand, etc.

- Definitely increases productivity & job satisfaction. May also reduce cost.

- Three strategies: Virtualization, Containerization, Limited Separation but Corporate Control.

Virtualization

- Terminal emulation on the device; Processing on the corporate server.

- No data actually resides on the device, therefore, security is high.

- No disconnected mode operation.

- No legal or policy issues.

- As long as the device supports the terminal emulator plugin, there are no support issues either.

Containerization

- The device is partitioned into two containers: Personal & Corporate.

- The MDM controls the corporate container. The user controls personal container.

- All corporate content resides exclusively in the corporate container.

- The corporate container may not allow all the device features.

Limited Separation, Corporate Control

- The device, with all its features, is used for both personal and corporate purposes. The corporate content has its dedicated volume.

- The MDM controls the ENTIRE device.

- Corporate policy trumps. In case of remote wipe, retention of personal contents is on best-effort basis.

- Smoothest experience but also the Riskiest.

Android (4.1.2)

- Linux-based

- No 1 Seller

- Most detailed & configurable UI

- Open Source

- Customized Implementations

- Google Play: 675K Apps

- Includes the entire Google ecosystem, including Maps

iOS (6)

- Apple OS X (Unix)-based

- No 2 Seller

- Only Apple Hardware: iPhone, iPad, iPod touch, Apple TV

- Most intuitive interface

- Apple App Store: 700K apps. Extra Content: iTunes Store, iBooks, etc.

- Voice Assistant: Siri

- Relatively Expensive

MS Windows

- Binary Incompatible: Windows Mobile 6.5, Windows 7 Mobile, Windows RT (ARM), Windows 8/Windows 8 Pro (x86)

- UI (W7 Mobile, W RT, W8): Tiles, Big Text, Live Streaming.

- 10K apps. Extra content: the Xbox Store

- Powerful Windows Ecosystem

- Actually behind BlackBerry in sales

RIM BlackBerry

- Still the most entrenched corporate device. Steadily declining sales.

- The most secure. The POTUS carries a Blackberry.

- All traffic routed through RIM data centers.

- Proprietary Hardware

- Betting on the new OS: BB10, Q1, 2013

Symbian

- The most popular Smartphone OS until 2010

- Supports 48 Languages

- Declining Sales

- Open Source

- Nokia will support one Symbian device until 2016. Beyond that, it is unclear if Symbian will survive. Might remain an option for budget phones.

Email

- Any cellular carrier can handle SMTP traffic, but is that really what the customer means?

- Specifically ask the customer re: Address Autofill? Contact Nos.? Calendar free-busy lookup? Booking meetings? Corporate From Address?

- What they really want is the corporate email. Not only that, they also want Single Sign-on.

- For MS Exchange, in theory, Exchange Web Services and Active Directory Federation Services can do all the magic necessary for delivering Single Sign-on and corporate email on any device.

- But none of it is plug-and-play. Both of them require extra work. Expectations may have to be tempered.

Office Suites

- DataViz Documents To Go

- MobiSystems Office Suite Pro

- Picsel SmartOffice

- Polaris Office

- Quickoffice

- SoftMaker Office

- SavySoda Documents

- AlwaysOnPC

- MS Office Mobile

Mobile Device Security

- Handful of FIPS 140-2 certified mobile devices

- Encryption in-flight necessity. Encryption at-rest desirable.

- Strong Device PW. Erasure upon preset no of login attempts.

- Notify users re: FOAA, Corporate Information Asset Security, wipe on-demand, etc.

- Difficult to secure an intrinsically vulnerable device.

Hacking a Mobile Device

- PW Cracking: Simultaneously double-dial; Guaranteed VM. Use std carrier magic key combo to switch greeting to admin. Start w/ repeated digits; Progress to more complex.

- Social Eng: Sweet-talk carrier's helpdesk to switch PW.

- Malware in Text Message: Same vectors as email: Social Eng, Phishing, Cross-Site Scripting, Host OS Command Injection, etc.

MEAP

- Mobile Enterprise Application Platform is a middleware-IDE that aims to provide device-independence via X-platform APIs.

- Source-to-Source Cross-Compilers

- Demonstrable ROI by insulating code against mobile device churn.

- Vendors: Kony, Sylco, Sybase-Afaria, Antenna, Spring, Pyxis, Rhomobile, IBM, etc.

- Frameworks: PhoneGap, QualComm Brew

Device Bottomlines

- Convergence: Smartphone, Notebook, Tablet.

- In spite of remote-kill, consider locally cached content compromised.

- Always encrypted

- Erasure upon preset number of decryption attempts

- Automated Remote Backup

- Only encrypted WPA2 wireless

- Quarantine upon connection to corporate network

App Bottomlines

- For custom apps, the default is the browser-client. Only one published URL, irrespective of client device.

- Peripherals are challenging (but not impossible) in a browser-client. HTML5 includes amazing capabilities: Cache-mode, Location, Camera, etc.

- By default, the browser is not designed for finger-clicking. But the browser can indeed be used for finger-clicking.

- For fieldwork, a rich-client app may be necessary.

- For custom rich-client apps, the MEAP (or a framework) is the best option because it ensures device-independence for the bulk of the code.

- For purchased apps, explicitly distinguish the device from the app from the data carrier. Avoid vendor bundling.

The Sources

- http://techcrunch.com/2012/10/16/mobile-milestone-the-number-of-smartphones-in-use-passed-1-billion-in-q3-says-strategy-analytics/

- http://www.comscore.com/Insights/Events_and_Webinars/Webinar/2012/Building_More_Informed_Mobile_Strategies_for_Today_s_Multi-Device_World

- http://www.pcadvisor.co.uk/news/mobile-phone/3409466/smartphones-tablets-growth-exploding-especially-in-business-gartner-says/

- http://www.pcadvisor.co.uk/news/laptop/3364198/a-third-of-it-shops-support-personal-smartphones-tablets-at-work/

- http://www.adotas.com/2011/10/mobile-only-internet-users-dominate-emerging-markets/