Cellular Wireless: 21st Century Communication Ecosystem

- 276 million US wireless subscribers
  - 89% of population
- 20% of US households now wireless-only
- $150 billion annual revenue
- $20 billion annual capital investment
  - AT&T projecting $38B for 2009/10
- 2.2 trillion annual minutes of use
- 1.4 trillion annual text messages
- 108 million annual E-911 calls
SmartPhones = Game Changers

• iPhone started the SmartPhone revolution:
  - Multi-capability hardware platform
    • Large touch screen, 3G, GPS & other sensors
  - App Store development & distribution platform
  - Broke traditional wireless carrier “walled garden”

• Other have followed rapidly:
  - Google “Android”, Nokia “Symbian”, Palm “webOS”,
    RIM “Blackberry” & Microsoft “Windows 7 Phone”

• Just 3 years after iPhone launch:
  - SmartPhone penetration ~30%
  - Hundreds of thousands of applications
  - Billions of downloads
Huge Wireless Data Traffic Growth (Primarily Smartphone Applications)

- AT&T experiences ~5000% data traffic growth in 12 months following iPhone launch

- Ongoing industry trend of rapid data traffic growth projected as:
  - Smart phones gain increasing market penetration
  - Rich media applications require higher bandwidth
  - Increasing adoption of mobile broadband
True “Mobile Broadband” Achieved with “4G”

- Global Mobile Broadband IP traffic will continue to grow significantly
  - US: 6 -> 400 Petabytes/month within 5 years (1 Petabyte = 1 million Gigabytes!)

- “4G” wireless technologies provide path to support Mobile Broadband growth

![Graph showing Petabytes per month - North America between 2008 and 2013](Source: Cisco Visual Networking Index: Forecast and Methodology, 2008-2013 (June 2009))

![Graph showing Mobility, High Speed, Medium Speed, Low Speed, and 4G](Source: Telcordia)
New Wireless Market Segment: “Machine-to-Machine” (M2M)

- Amazon Kindle
  - Embedded 3G Wireless
  - No direct consumer wireless subscription

- Apple iPad
  - Embedded 3G Wireless + Wi-Fi + Bluetooth
  - 3G data plans from $15/month (250MB/month)
High Growth of “Machine-to-Machine” (M2M) Segment Projected

- Wireless industry has achieved saturation of traditional (cell phone) market - M2M is major new market opportunity

Source: Connected Planet and Opportunities for Wireless Applications (http://mobicase.org/presentations/Connected_Planet.pdf)
Source: 4G World, Sept 09
Growing Vehicle Telematics Adoption (providing wireless vehicle connectivity)

- Vehicle Telematics now mainstream
- “Built-In” and “Brought-In” approaches being explored by OEMs & TSPs
Growing Satellite Radio Adoption has Provided Platform for Real-Time Traffic

- SiriusXM penetration in new OEM vehicles approaching 60% of all cars sold (audio)
- Over 1 million OEM Vehicles with Factory GPS Navigation + Real-Time Traffic via satellite radio

Source: XM, Sirius and SiriusXM Annual Reports
After Traffic comes Weather...

- Focus on traveler information
- Real-time weather information available on an increasing number of vehicles (from Ford, Honda, Nissan, Porsche, Toyota, etc.)
- Graphical road weather applications on vehicle / portable GPS navigation systems & smart phones, iPad, etc.
Next big thing: Probe Data

- Real-time data from mobile sensors
  - Vehicles on roadway
  - GPS cell phones

- Probe data already being used:
  - Inrix gathers real-time probe data from 2 million vehicles as input for their real-time traffic services
  - GM uses data from OnStar-equipped vehicles for multiple applications, including diagnostics/prognostics and use profiles to support new vehicle development.
Google General Transit Feed Specification

Google maps

Transit

Plan a trip using public transportation

Use Google Maps to

- Get step-by-step transit directions
  - in your web browser
  - on your mobile phone
- Find transit stops in your area
- View station information and schedules

Join the transit partner program

Get transit directions

Start address
Destination address

Leave  8/2/10  6:47pm

See what cities are covered (more than 446)

Recent highlights: Boston, Los Angeles, Brussel, Denmark

View text only version
MassDOT Developers: Where is the Bus?

MassDOT Developers Page Beta

Welcome to the BETA version of the MassDOT Developers Page. The information and links found here are meant to serve as resources for developers interested in working with real-time and static transportation data made available by MassDOT and its family of agencies.

MassDOT’s Relationship With Developers
MassDOT and Developer’s Relationship Principles (UPDATED 11/13/2009)
Developer’s License Agreement (UPDATED 11/13/2009)

Join the MassDOT Developers Community
Connect with us on Twitter:
http://www.twitter.com/MassDOTdev

Join the discussion at our official Google Group:
http://groups.google.com/group/massdotdevelopers?hl=us

Learn More About MassDOT Developers
“Lightning Round” Presentation: http://www.youtube.com/watch?v=f-UUAvv45k
PowerPoint Presentations: http://www.slideshare.net/massdotdev

1 HOUR | 2 DAYS | 1 WEEK

1 WEEK | 1 MONTH | 5 WEEKS

1 BUS: 6 MINS.
Thank You!

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