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#### **Internet of Things**



#### Integrated Devices & Ecosystems

The Internet of Things (IoT) driving Mobile Computing and Big Data.

- In 2011, over 15 billion things were on the Web, with 50 billion + intermittent connections. By 2020, over 30 billion connected things, with over 200 billion with intermittent connections will be on the internet. By 2015, in more than 70% of enterprises, a single executive will oversee all Internet connected things.
- Key elements of the IoT trend include phones, tablets, TVs, but more importantly intelligent sensors, image recognitions technologies, NFC payment systems. As a result, **mobile computing is beyond smartphones and tablets, it includes everyday things like pharmaceutical containers and automobiles etc. that are being connected permanently or intermittently to the internet (driving big data opportunities)**

**Integrated Devices and Ecosystems**: Trends shifting to more integrated systems and ecosystems and away from loosely coupled heterogeneous systems.

- **Two factors are driving this trend**: user desire for lower cost, simplicity, and more assured security, as well as the trend for vendors to have more control over the full solution stack and derive greater value/profitability from both the initial sale and on-going support of the solution.
- Cloud and mobile are mutually reinforcing trends and we see that drive the integrated devices/ecosystem - many mobile apps and solutions will exploit cloud services experience. From researching purchasing decisions to mobile commerce, expect to see more brands start to innovate and cater to the needs of mobile audiences to allow for more seamless use and integration of smartphones into our daily lives (More details in the Personal Cloud and Seamless Device section)



Hybrid IT & Hosted Virtual Appliances



Pub./Priv. Data Exp. & Strategic Big Data **Hybrid IT and Hosted Virtual Appliances**: **With the emergence of** Cloud computing as a dominant paradigm, providers increasingly promote tightly integrated systems and managed ecosystems to simplify the IT environment.

 There will be more packaging of software and services to address the infrastructure and application workload, resulting in more shipments of "appliances," with software delivered through hardware. Virtual Hosted Appliances will gain in popularity over the next three to five years

### Big Data is moving from a focus on individual projects to an influence on enterprises' strategic information architecture.

- Five richest big data sources on the Web include: social graph, intent graph, consumption graph, interest graph and mobile graph.
- **Concept of single corporate data warehouse is dead** as Organizations move towards multiple systems, including content management, data warehouses tied together with data services and metadata, which will become the new 'logical' enterprise data warehouse that enables new insights and opportunities.
- **PS ripe with opportunities** as Government agencies launch research programs to address the challenges presented by big data.



End-User Driven Actionable Analytics



Enterprise Risk Mgt. & Cybersecurity Actionable Analytics Will Be Driven by Mobile, Social and Big Data Forces: Business today requires ondemand, real-time decision making and forward-looking analytics from mobile devices.

- **IT leaders can now perform analytics and simulation for every action taken in the business.** Analytics is increasingly delivered to users at the point of action and in context.
- The mobile client linked to cloud-based analytic engines and big data repositories enables the use of **optimization and simulation** everywhere and every time. This empowers even more decision flexibility at the time and place of every business process action.
- **BI professionals must make analytical capabilities more transparent**, available in context, and embedded into real-time applications accessible by nontraditional analytics business users on mobile platforms..

### Ent Risk Management and Cybersecurity: Our increasingly heavy dependence on various digital infrastructures (government and corporate) has made them strategic assets to be protected

- The Internet is becoming a battleground where challenges for technical, social, and political control are occurring, including between governments and their citizens, and competing commercial interests.
- These challenges will take many forms, including Internet filtering versus circumvention, surveillance, denial of service attacks. Enterprises and government entities will need to be increasingly more vigilant in the "Internet of Things" environment
- Cybersecurity is an emerging area of intense activity that endeavors to provide innovative solutions to ensure uninterrupted communications and service availability.



#### **Enterprise App Stores and HTML5 Growth:**

- **By 2014, there will be more than 70 billion mobile app downloads** from app stores every year. Also by 2014, most organizations will deliver mobile apps to workers via private application stores.
- **Enterprises** looking to implement private app stores will also find themselves obsessing over how to increase a steady supply of apps to drive interest and how their app store can support broader enterprise platform objectives.
- **HTML5 and Web Technologies becoming major forces in mobile application development**: While the market for tools to create consumer and enterprise facing apps is complex (over 100 potential tools vendors), six mobile architectures native, special, hybrid, HTML 5, Message and No Client will remain popular. Expect to see long shift to HTML5 from native apps as HTML5 becomes more capable.



Personal Cloud & Seamless Device Exp. The era of the Personal Cloud has begun: Users will see it as a portable, always-available place where they go for all their digital needs from any device.

- Online applications and services will transform the consumer technology market and become the "locations" where users will store content and access personal, business and government services
- Seamless application user transition across devices: With more users working across multiple devices, 2013 will see more movement in providing a continuous experience for users across all the devices they use. Boxes and tablets will further drive content delivery beyond traditional TV(e.g., expect to see more of the app-ification of curated media by innovative firms like Netflix across devices such as Rokus)



#### Business & Niche Social Computing



Wearable Technology & Natural U.I. **Business and Social Niche Computing:** Facebook's ubiquity has led to the proliferation of the niche social network, from photo and video sharing on Instagram and Vimeo, to music and theater lovers using Spotify and Playbill Memory Bank.

- In 2013, expect to see more custom networks that use Facebook's login mechanism as a gateway to smaller, more focused social networks.
- Social emerges aggressively in the enterprise as well, with services like Jive, Chatter and Yammer/MSFT continuing to expand the social enterprise market.

#### Wearable Technology and Natural UI: Emerging trend with two developments to call out

- **Smart Glasses**: Google Glass is now released and starting to see spottings in California. There are competitors to the smart glasses throne, to be sure, such as the <u>Vuzix M-100</u>. With experience in the past with the United States military as designers of heads-up displays, Vuzix has put itself at the forefront of the smart glasses race with an expected release date for consumers of late 2013.
- Smart Watches: MI firm ABI Research projects more than 1.2 million smart watches will be shipped in 2013. The wearable computing device can be split into four categories: notification types, voice operational smart watches, hybrid smart watches, and completely independent smart watches. Notification type devices are the MetaWatch and Cookoo smart watches, for example, offering alerts for incoming calls, messages and other notifications. Voice operational smart watches enable users to conduct calls and speak some commands via the device such as Martian's smart watch. To be noted that Samsung (and Microsoft) are planning touch-enabled watches for their smartphones and tablets



#### Our Mission

At Microsoft, our mission and values are to help people and businesses throughout the world realize their full potential.



Creating a family of devices and services for individuals and businesses that empower people around the globe at home, at work and on the go, for the activities they value most