



A black and white photograph of a cloudy sky. In the upper right corner, a smartphone is positioned vertically, its screen facing forward. The screen displays a large, bold, black sans-serif font that reads "Mobile Cloud Computing". The rest of the image shows various cloud formations against a dark background.

Mobile Cloud Computing

Outline

- Understanding Mobile Cloud computing
- Mobile Cloud Infrastructure
- Trends, businesses, contexts of Cloud-based mobile
- Mobile development

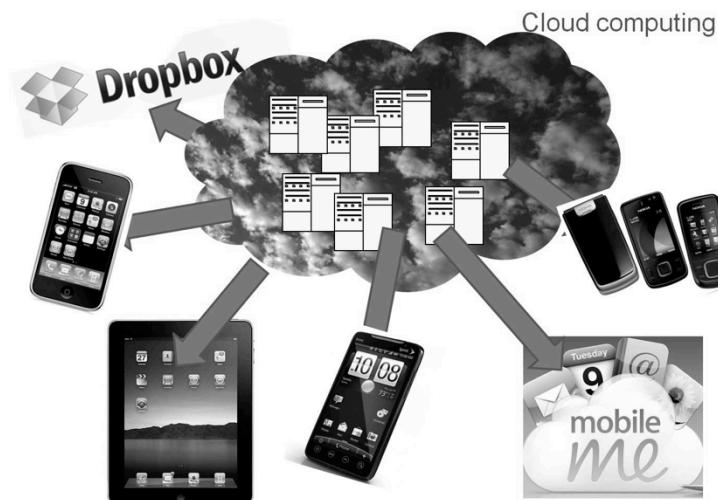
Evolution of Mobile Computing

- Biggest impact on society
- From heavy cumbersome device to smartphones
- Using smartphones:
 - Browse websites
 - Video calls to phones and computers
 - GPS-navigational operations
 - Exchange text messages
 - E-commerce
 - Run apps
- 3G vs. 4G

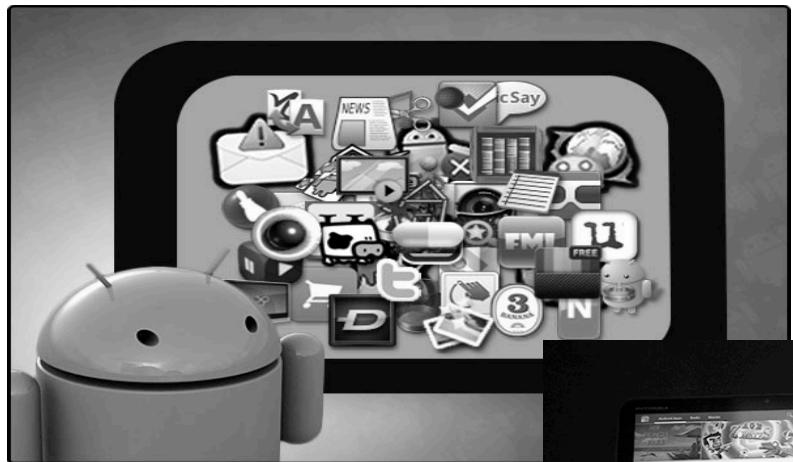




What is Mobile Cloud?



Smartphone & mobile devices created mobile cloud



- One of the hottest trends in cloud computing -> The convergence of cloud computing and mobile apps

What is Mobile Cloud?

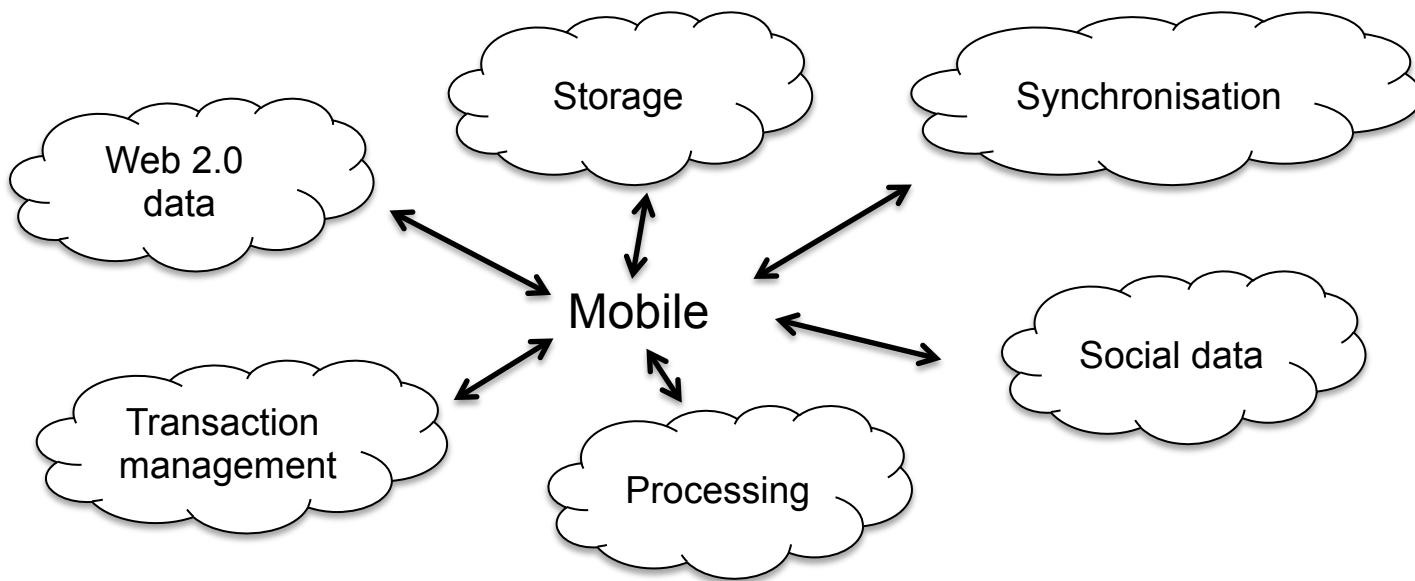
- An instance of technology using cloud computing in mobile environment *(Liu QingFeng)*
- Collection of concepts:
 - SOA (Service-Oriented Architecture)
 - Distributed and grid computing
 - Virtualisation
 - Other services from cloud providers
- Why cloud computing is suitable for the mobile environment?

The cloud provides advance Mobile contexts

- Photo / Audio context
 - Image processing / Voice to text
 - Scientific use
- Social context
 - Twitter relationship for instance / Influence, info flow, SN analysis
- Group context
 - Similar Web 2.0 rankings (Yelp..)

Cloud to offer services and overcome limitations

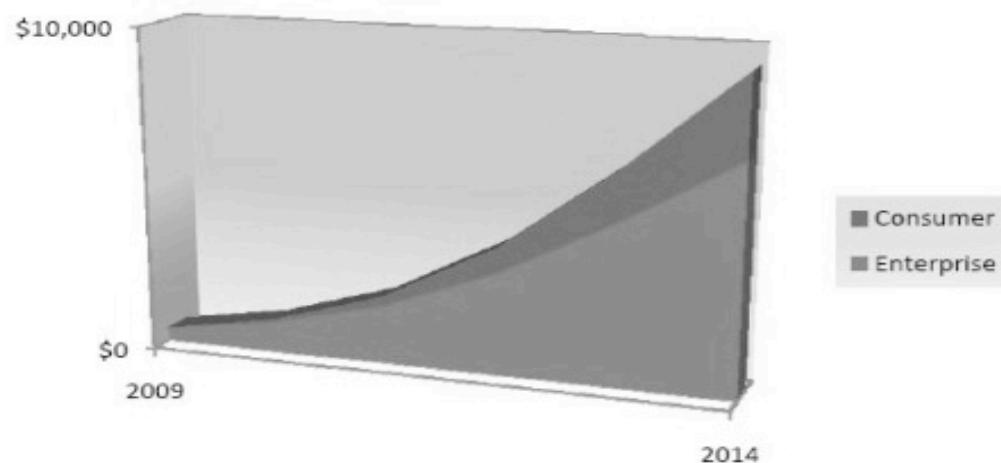
- Minimal storage
- Highly constrained processing environments
- Multitasking / concurrency support



Mobile cloud

- Estimated to grow from \$400 million in 2009 to \$9.5 by 2014 (and nearly \$39 billion by 2016!*)

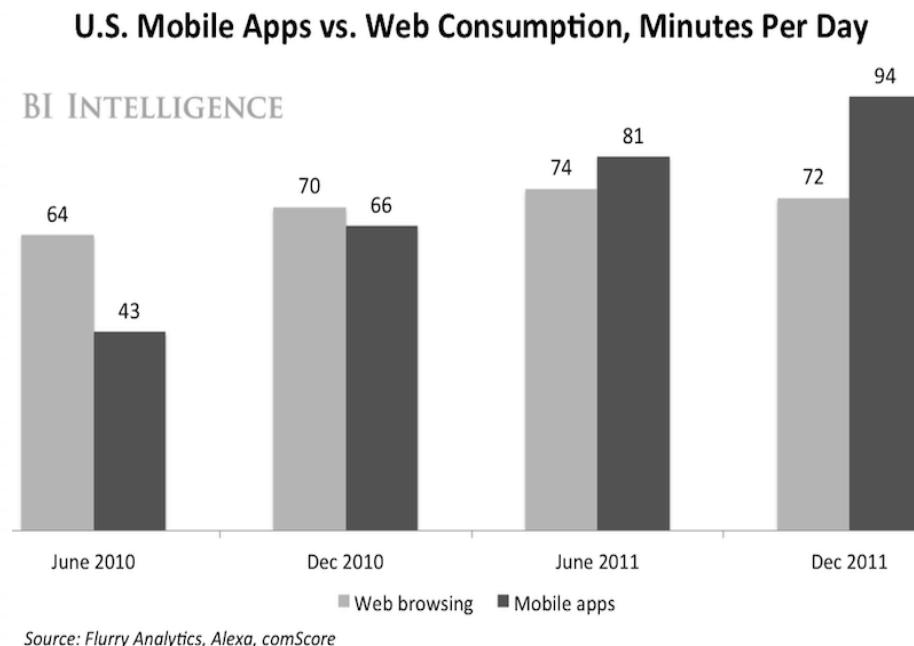
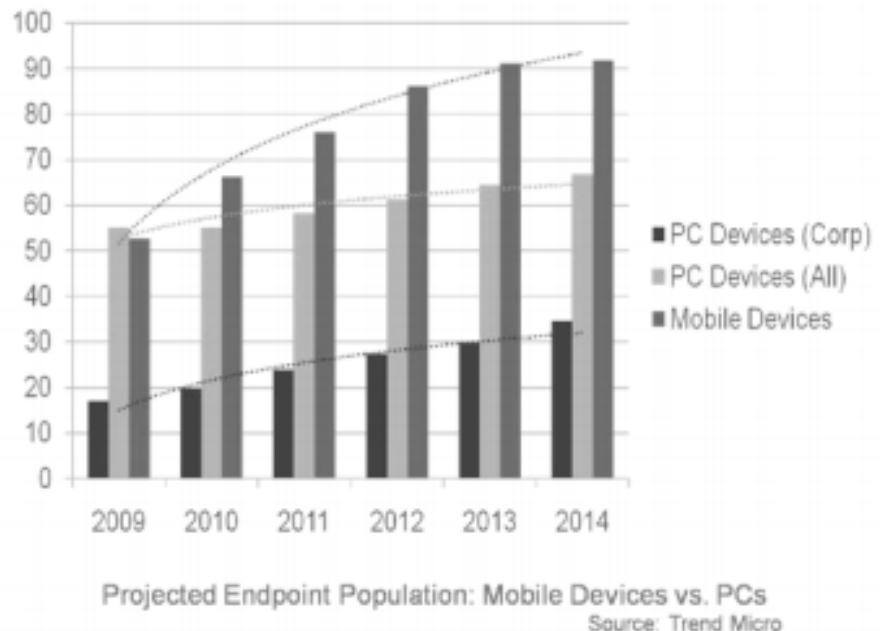
Figure 1: Total Market for Cloud-Based Applications. Consumer & Enterprise Applications, 2009-2014



Source: Juniper Research

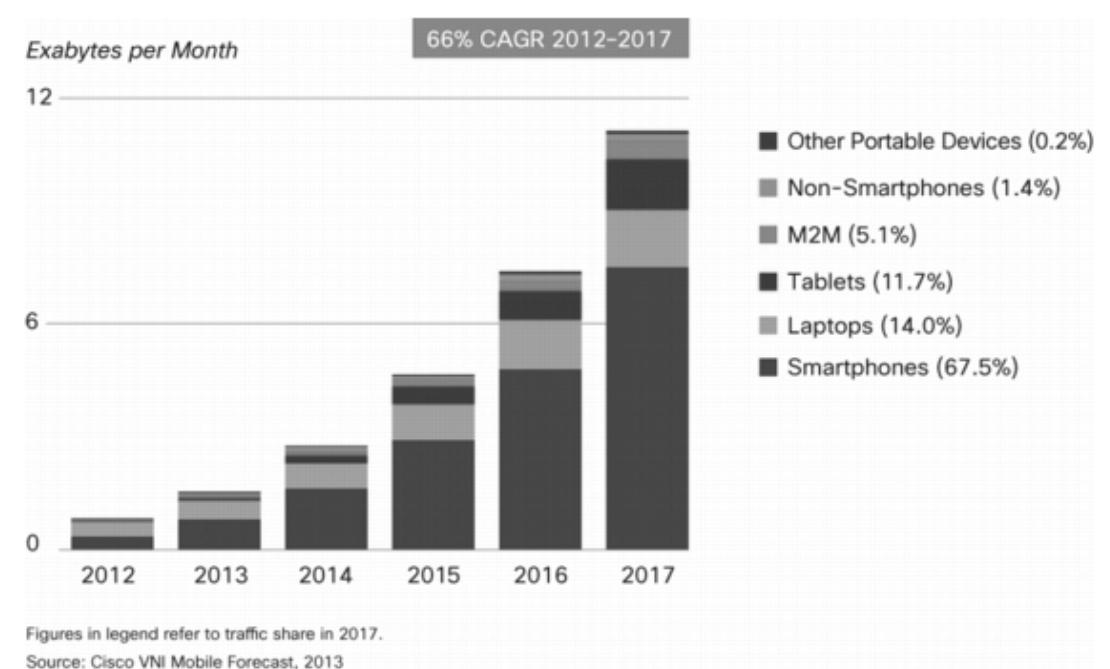
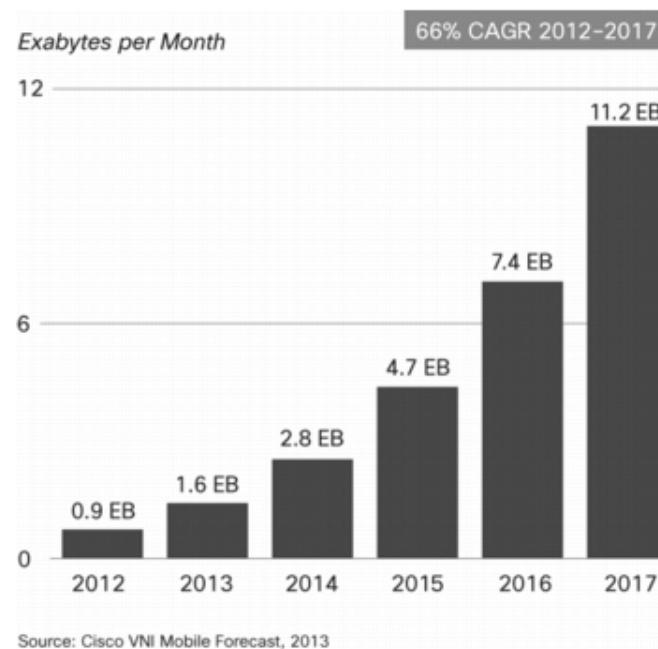
* Juniper research

Mobile cloud: indicators



Mobile cloud: indicators

Global mobile data traffic



CAGR: Compound Annual Growth Rate

Mobile Cloud Ecosystem

- **Ecosystem:**

- Environment that consists of living and non-living things with which one interacts.

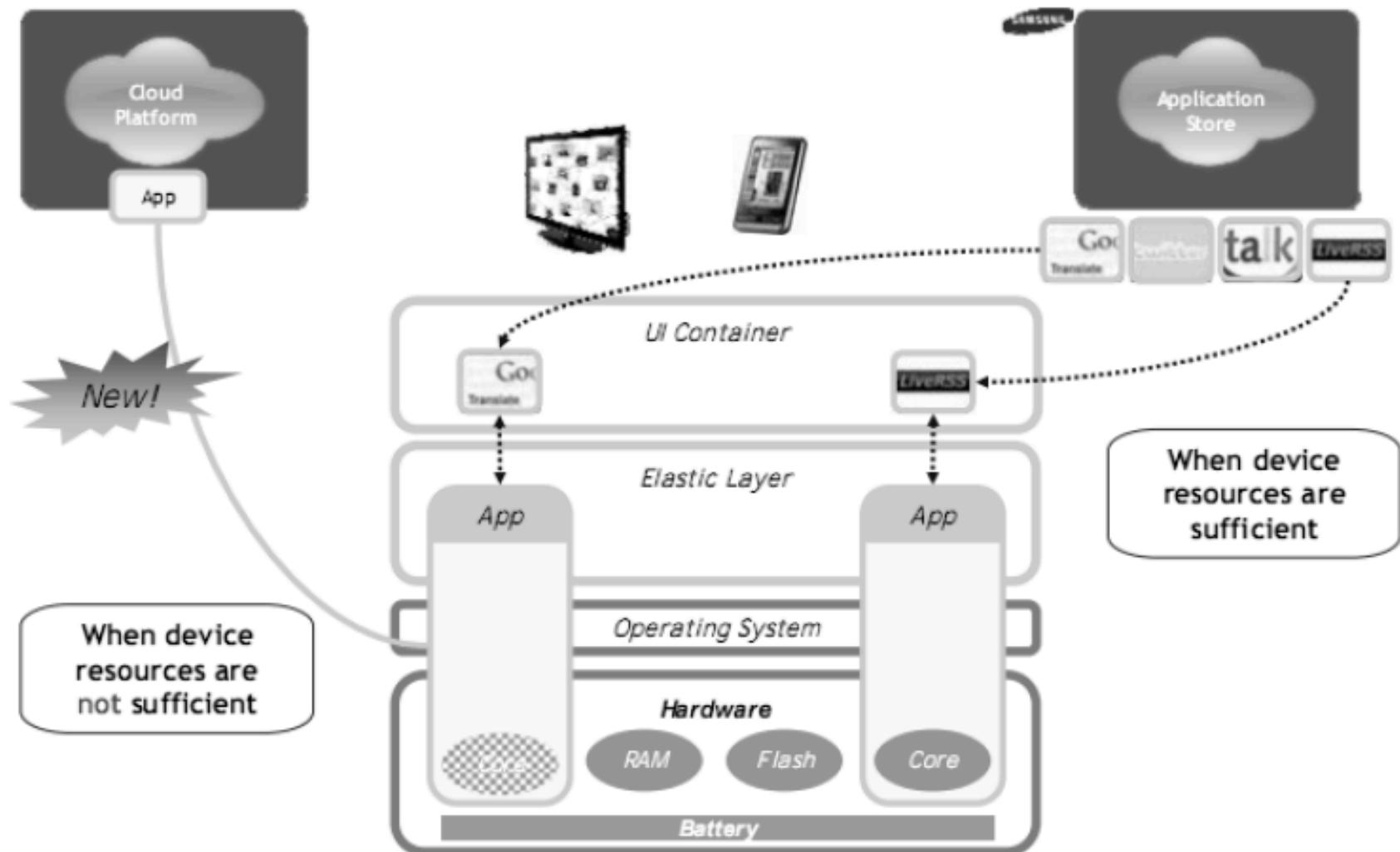
- **Mobile cloud Ecosystem:**

- Web browsing
 - Apps and widgets
 - Voice commands and voice recognition
 - Display screens
 - Keyboard interface
 - Touchscreens
 - ...

Pages, Apps and Widgets

- **Web pages:**
 - Targeted for a mobile display: mobile browsers
- **Apps:**
 - Device-specific program
 - App stores
- **Widgets:**
 - Like App
 - Always active
 - Always running and communicating
 - ...

Mobile Cloud Infrastructure



(Meng Zhu)

Mobile Development

- Mobile web is not the traditional web
- Fast is good
- Goals and requirements
- Cannot support everything
- Handle different display sizes