Building Many Bridges to the Cloud

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My Background

M.S. in EE from **Stanford** in 1996

Worked at a number of large companies and startups in the valley

Managed **Yahoo! Mail** backend engineering team

Helped set up **EMC China R&D Center** in Shanghai and Beijing

Joined **VMware** in 2009

Currently leading several projects in Cloud Application and Services BU

Professional areas of interest
- Large-scale, distributed storage systems
- Cloud-based software for SMBs

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Today's Opening Comments

Why does Cloud matter?

Cloud in China

The "Cloud" is simply the entire Internet

There are many things in the Cloud…

Cloud Computing

Cloud Storage

Cloud Applications

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Characteristics of Cloud

Use pooled resources

Own or rent

Separate end user interface from service backend

Choose not to own hardware and software

Utility computing

Pay upfront or pay as you go

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Cloud is not about *where*, but *how* computing is done

3 Layers of Cloud Computing

Software as a Service (SaaS)

Platform as a Service (PaaS)

Infrastructure as a Service (IaaS)

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Benefits of Cloud

Lower cost

Improve efficiency

Increase economy of scale

Allow specialization and innovation

Open a new era with exciting opportunities

Provide access to technologies for the less privileged

Challenges of Cloud

Privacy

Security

Open vs. proprietary

Business model

Individual freedom vs. government control

(Un)equal access to technology

The government

The telcos

The consumers

The businesses

The new generation of net companies

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China: Numbers and Stats

384 million internet users (2009)

780 million mobile phone users (2010)

Digital divide between urban and rural areas

- Penetration rate: 5.1% in rural vs. 21.6% in urban (2007)
- # of computers per 100 households: 2.7 vs. 47.2 (2006)
- Usage pattern:
  - Similar level of usage of online entertainment by rural vs. urban users
  - Less use of search engine and online news by rural users
  - Much less use of online purchasing, banking, stock trading by rural users

Highly fragmented retail, payment and logistics market

Case Study: Alibaba

Based in Hangzhou (120 miles south of Shanghai)

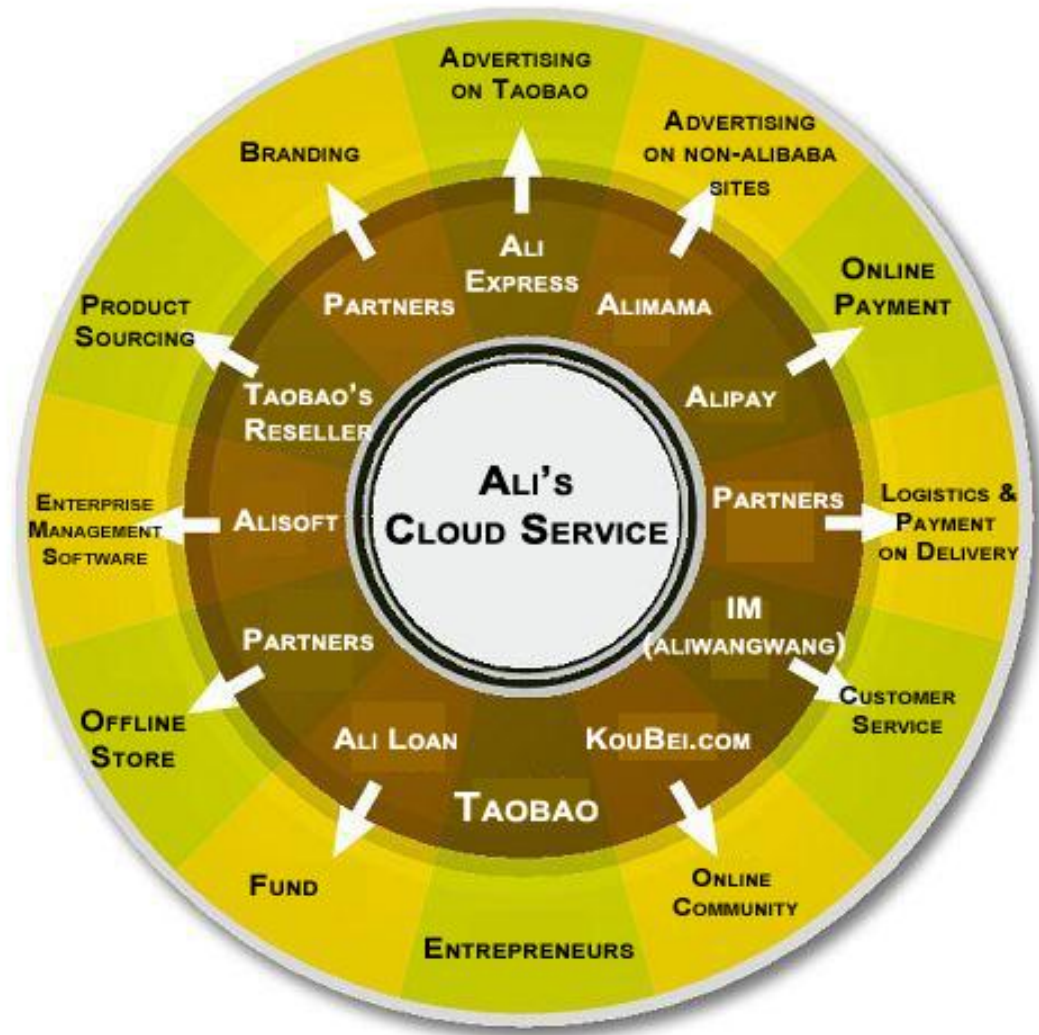**Founded by Jack Ma in 1999**

Owns and operates a number of high profile Internet businesses:

- **Alibaba.com** – online B2B marketplace (market cap ~USD $10B in April 2010)
- **Taobao** – a consumer-focused e-commerce business
- **Alipay** – an online payment service
- **Alimama** – an online advertisement exchange service
- **Ali Cloud** – internal- and external-facing cloud platform
- **Yahoo! China** – online classified listings and community-based groups

In 2005, Yahoo! Inc. purchased a 39% stake for US$1 billion

Alibaba's Cloud Vision

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Cloud in China

Thank You

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