Welcome!

- I'm Jon Crowcroft of the **Systems Research Group** (SRG)

- We build better useful stuff.

- The SRG covers a lot of bases:

  - fixed and wireless networks, operating systems, distributed systems, programming languages & runtimes, databases, social media, dynamic complex systems, graphs, buildings, energy, food…

- ~10 faculty / senior researchers + ~30 graduate students

- We work with DTG, Security, Architecture, Theory, Programming Languages….

- First, however, let me give you a brief overview of other work done

Systems Research Group

INTERNET
Energy efficient networking

C-Aware
Carbon-awareness for consumers

FRESNEL
Large-scale Federated Sensor Networks

Hardware

Systems Research Group

Xen™

Most widely deployed x86 hypervisor
Successful tech transition to industry

Cloud: Amazon EC2, Rackspace
Product: Citrix XenServer, Oracle Linux

Research efforts:

XenSE: trusted computing
XenClient: client-side virtualisation

Hypervisors

Hardware

Systems Research Group

Kernels, OS & PL

Hypervisors

Hardware

MirageOS:

Type-safe, high-performance operating system for cloud computing

Speculative Binary Lock Elision:

Analyze x86 binaries to eliminate locking

Systems Research Group

Storage

Kernels, OS & PL

Hypervisors

Hardware

Nimbus:

Highly-available and globally replicated personal storage

Personal Containers:

Distributed database aimed at individuals to securely store a lifetime of personal data

Systems Research Group

Networking

Storage

Kernels, OS & PL

Hypervisors

Hardware

MOOSE:

Addressing the scalability of Ethernet
(with IETF participation)

iDNSSEC:

Delivering simple DNSSEC for individuals
to use for Internet-scale identity
(with Verisign)

Systems Research Group

Application

Programming

Networking

Storage

Kernels, OS & PL

Hypervisors

Hardware

EmotionSense

Adaptive platform for experimental social psychology research

Mobile Privacy

Distributed randomised response from mobile phones for private location gathering

Sentiment Political Analysis

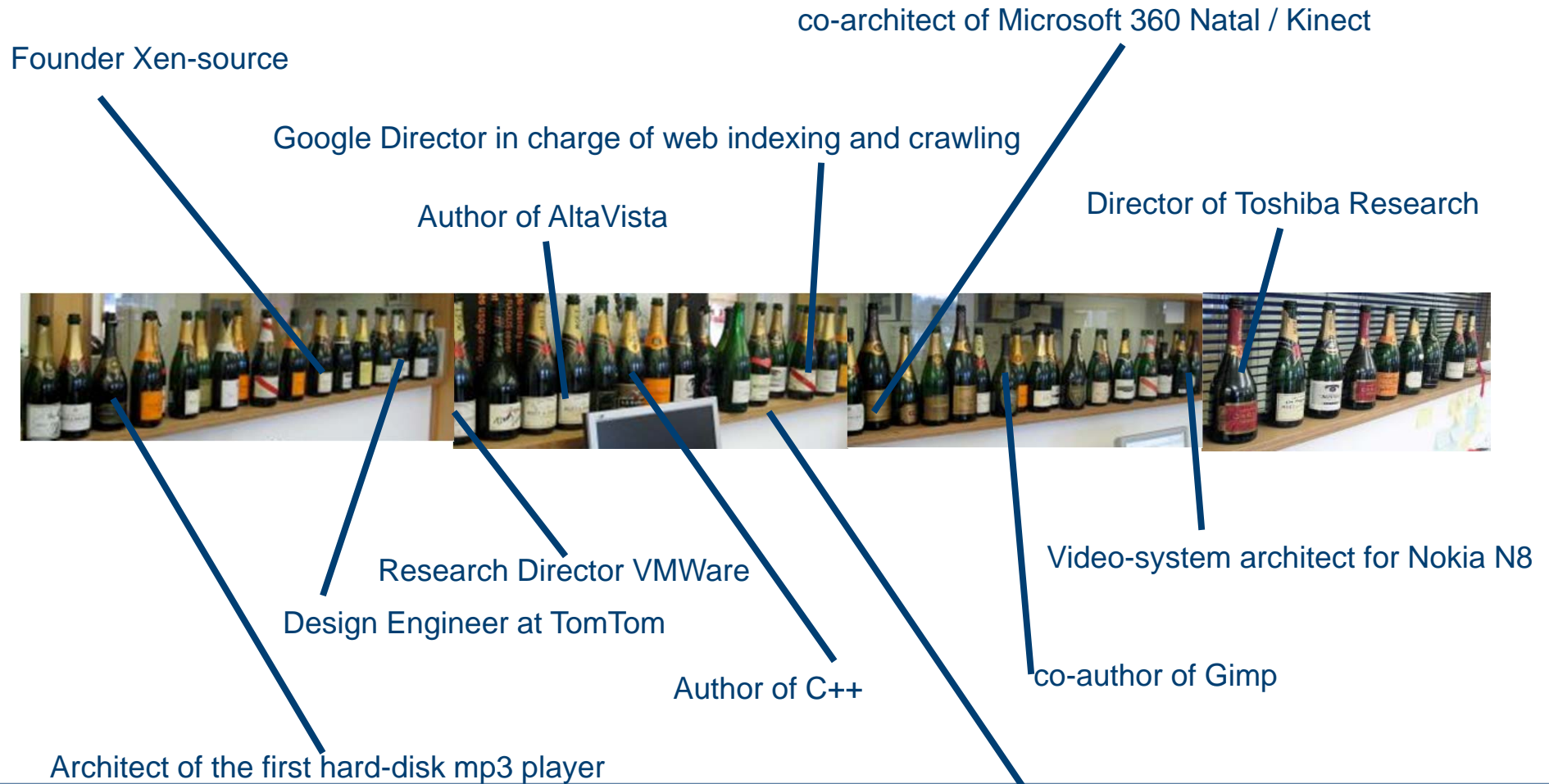Natural language parsing to classify digital interaction with emotions

Summary

- Work across all system, hardware up to cloud & mobile applications

- Work with wide range of industry - Microsoft, Google, Amazon, Fb, etc

- Funded from variety of sources, EU, UK, US, industry&government

- Welcome visitors too…

3 Cases

- Longer Battery Life in Smart (Android and iPhone) Handset Systems

  - Adcache & Assisted GPS, with O2/Teleconica

- Resource in Data Center

  - Multipath and resource pooling, with MSR and Cloudera

- Political Diversity and Twitter

  - With KAIST, MPI and Yahoo!

SRG - what have SRG PhDers done?

(a very small sample)

co-architect of Microsoft 360 Natal / Kinect

Founder Xen-source

Google Director in charge of web indexing and crawling

Director of Toshiba Research

Author of AltaVista

Research Director VMWare

Design Engineer at TomTom

Video-system architect for Nokia N8

Author of C++

co-author of Gimp

Architect of the first hard-disk mp3 player

UNIVERSITY OF
CAMBRIDGE

SRG commercial destinations

…the ONLY qualification that guarantees a job here is a good systems PhD from Cambridge…

(Director of a **research** lab in Palo Alto)

You will find SRG PhDs in
Microsoft, Google, Intel, Sun, AT&T, IBM,…
AND founding a lot of other places too….

Citrix Acquiring XenSource for $500 Million

August 15, 2007

Globespan to buy Virata for $1.3 billion to create DSL-chip powerhouse

January 10, 2001

SRG people

- **Jean Bacon - open, large-scale, widely distributed systems**

- **Jon Crowcroft - Networking the mobile huddled masses, without melting the world**

- **Richard Gibbens - Modelling communication and transport networks and traffic**

- **David Greaves - Building safe safety-critical ubiquitous systems**

- **Tim Griffin – Formal methods and correctness in routing protocols**

- **Steve Hand - Operating System and Virtualization for fun and profit**

- **Ian Leslie – So how do you video conference for a billion friends...**

- **Cecilia Mascolo – Bringing society to social networks**

- **Derek McAuley - Systems Design, Communications & Networking**

- **Andrew Moore – Making the Internet run faster with less**

SRG contact details

http://www.cl.cam.ac.uk/research/srg/

http://www.cl.cam.ac.uk/research/srg/netos/

Systems take your interest?

SRG: dream it – build it