



# The Internet of Everything

What will change?

**Stefan Keil**

Systems Engineer

May 7, 2015

**Tim Heckmann**

Network Consulting Engineer



# Agenda

- Introduction
- Company Overview
- The Internet of Everything
- Career Opportunities
- Discussion/Q&A

# Introduction

# Some words about us





# Some words about us

Diese Bescheinigung wurde maschinell erstellt, sie trägt daher weder Unterschrift noch Siegel

**FACHHOCHSCHULE WILHELMSHAVEN**

**Studentinnen-/Studenten-  
ausweis** Nur gültig in Verbindung mit einem amtlichen Ausweis

Name/Vorname  
Keil, Stefan

Geburtsname  
Keil

Geburtsdatum  
04.02.19

isi ordnungsgemäß a.  
im SS 96

Fächbereich  
Fb Elektrot

Studiengang  
Elektrotechn.

Datum  
14.12.1995

Gültig  
vom 01.03.1996 bis 3.

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www.cisco.com

**Ihr Partner für innovativ**



# Company Overview

# Two Cables and a Desire to Connect



# FY14 Financials

Revenue:  
\$47.1B  
-3% Y-Y Growth

Total Cash:  
\$50+B

Product  
Revenue:  
\$36B

Services  
Revenue:  
\$11.6B

# Customers Rely on Cisco for Innovation

1986

1<sup>st</sup> multi-protocol router, the  
Advanced Gateway Server

1989

Border Gateway Protocol  
(BGP) for Service Providers

1992

Groundbreaking Interior Gateway  
Routing Protocol patent

1994

1<sup>st</sup> major supplier of  
multiprotocol products awarded  
ISO 9001 cert.

1998

1<sup>st</sup> small office/ home/  
telecommuting cable modem

1999

IP Telephony  
Patent

2004

Cisco Carrier Routing  
System (CRS-1)

2006

TelePresence

2008

Collaboration Portfolio

2009

UCS

2011

ASR 9000 Series  
(1<sup>st</sup> Terabit-router)

2013

Network  
Convergence System  
(Planet's Fastest Router)

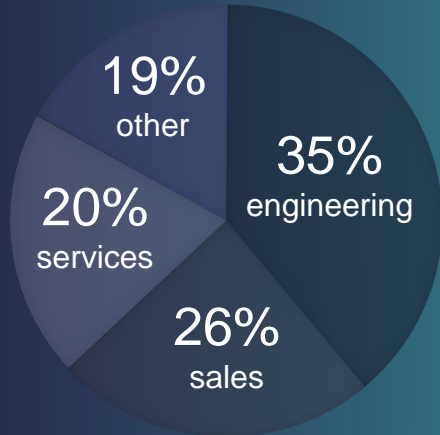
2014

Application-Centric  
Infrastructure



# culture employees

...are our competitive advantage



71K+  
employees

380+  
offices



# Cisco's R&D Commitment

We Build the Solutions You Need to Succeed



\$6.3B in R&D spend

13.4% of FY14 revenue

19,000+ patents

170 labs around the world

25,000 engineers

*Build – Buy – Partner – Integrate*

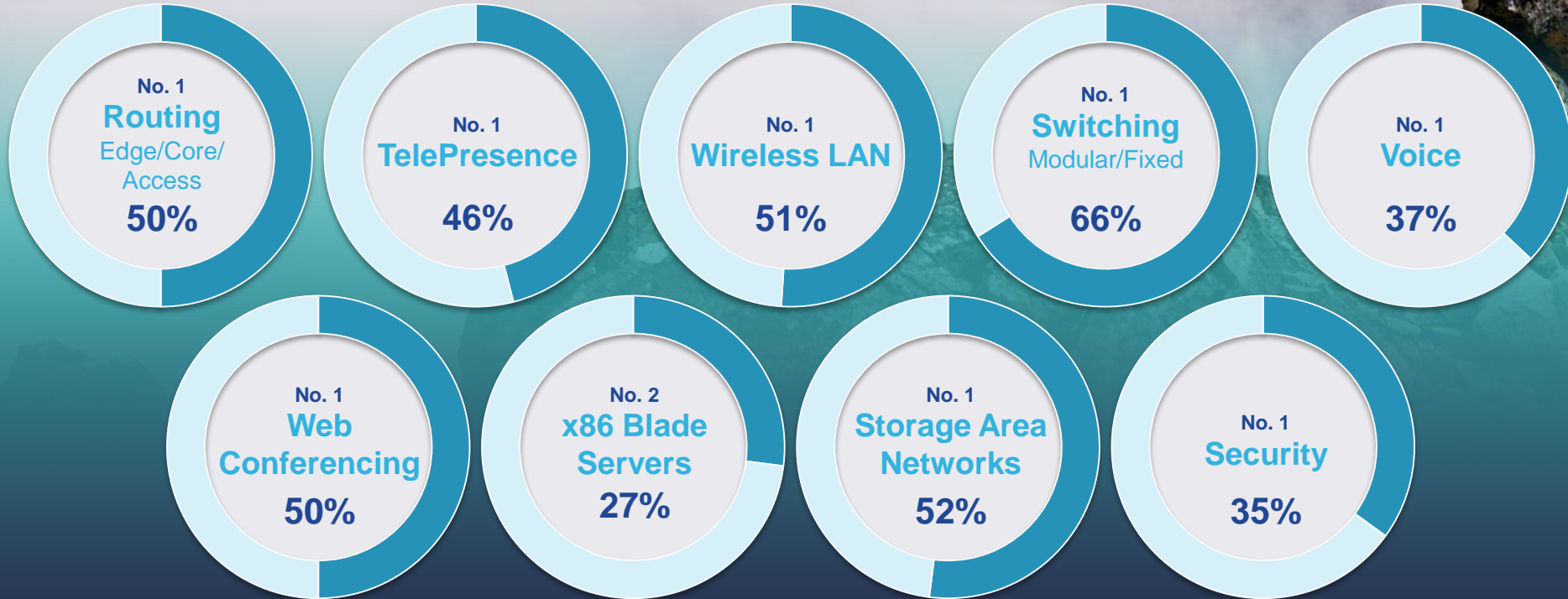
# Acquisitions: An Extension of Cisco's Innovation Engine

More than 170 Across Architectures



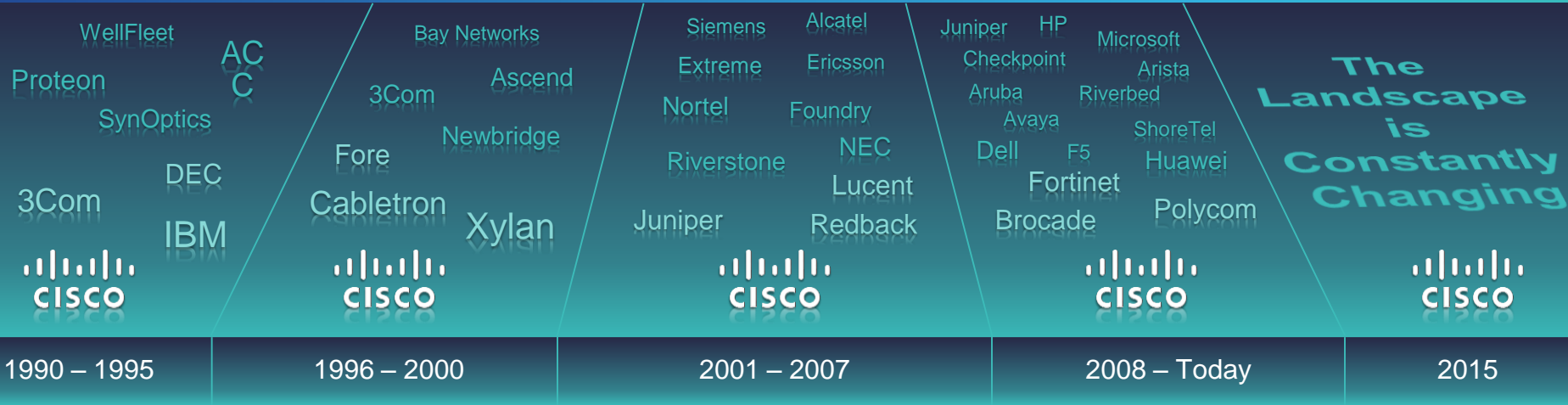


# Market Leadership Matters



# Leading for 30 Years

Internet of  
Everything



# The Internet of Everything

Transformation

Automation

Efficiency

Cost Saving

Convergence

Industrie 4.0

Machine to Person

Cloud

Person to Person

Fog

Machine to Machine

Big Data

**Internet of Everything**

Digitization

**Internet of Things**

Distributed Computing

Fast IT

Analytics

Digital Disruption

Connectivity

Innovation

New Business Models

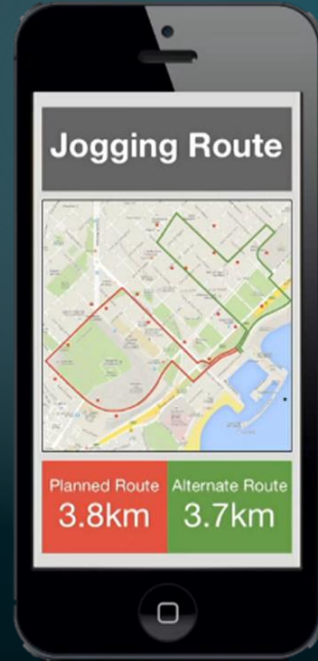
Globalization

Technology as Enabler



<https://www.youtube.com/watch?v=Kt5VuIFqBm4>

# Use Cases





# The World Is Changing

Mobile data  
will grow  
18-fold in  
5 years

$\frac{2}{3}$  of all  
data center traffic  
will be from  
the cloud  
in 3 years

2012 generated  
more data than  
previous 5,000  
years combined

300K+ apps  
developed  
in the past 3 years  
with 10.9B  
downloads

50B  
connected devices  
by 2020



Mobility



Cloud



Big Data



New Breed of Apps



Internet of Things

**INTELLIGENT NETWORK**



1.000 Internet Devices in 1984  
1.000.000 Internet Devices in 1992  
1.000.000.000 Internet Devices in 2008  
12.500.000.000 Internet Devices in 2010

50,000,000,000 in 2020

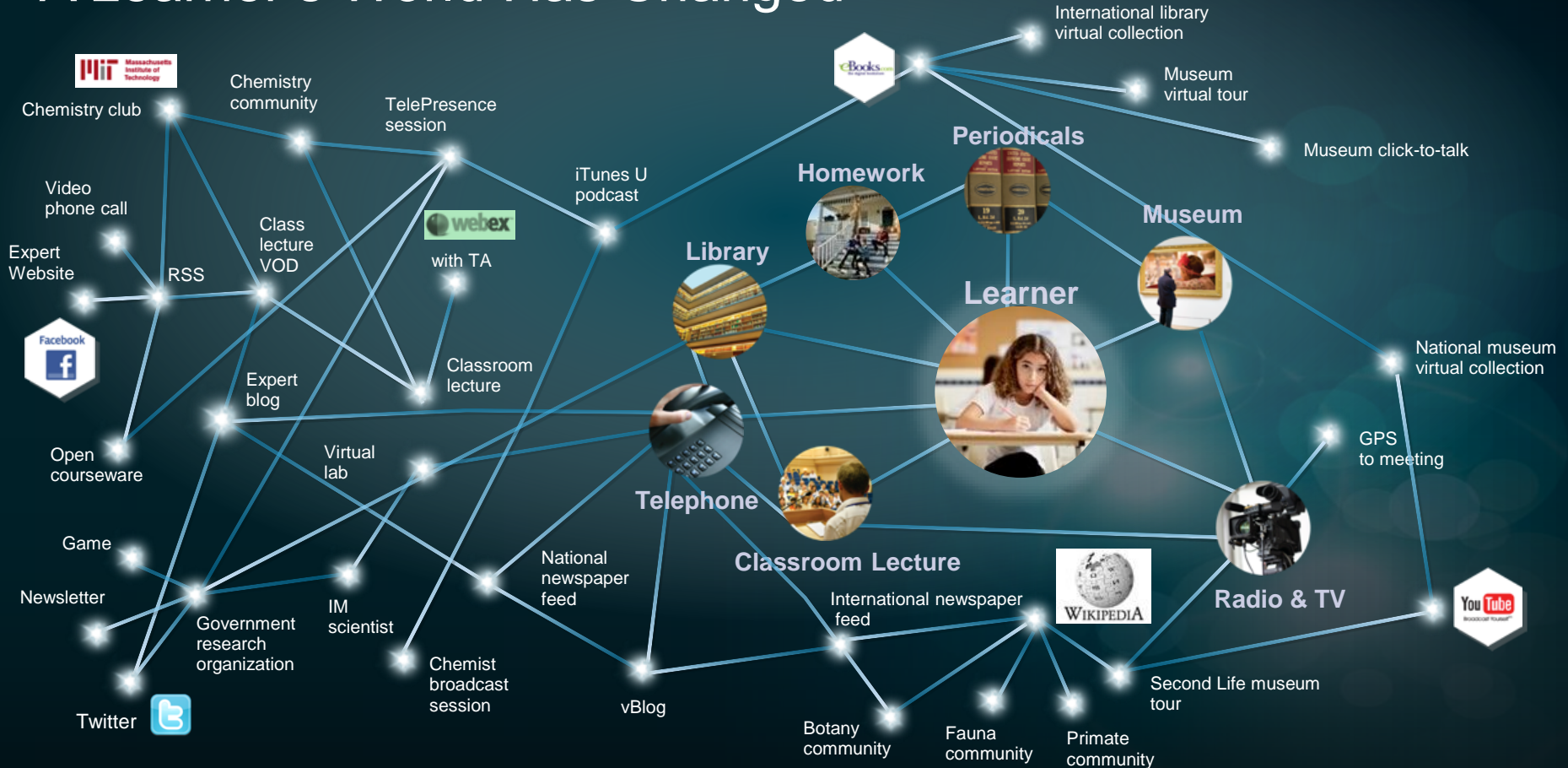


Source: Telefonica I&D 2011

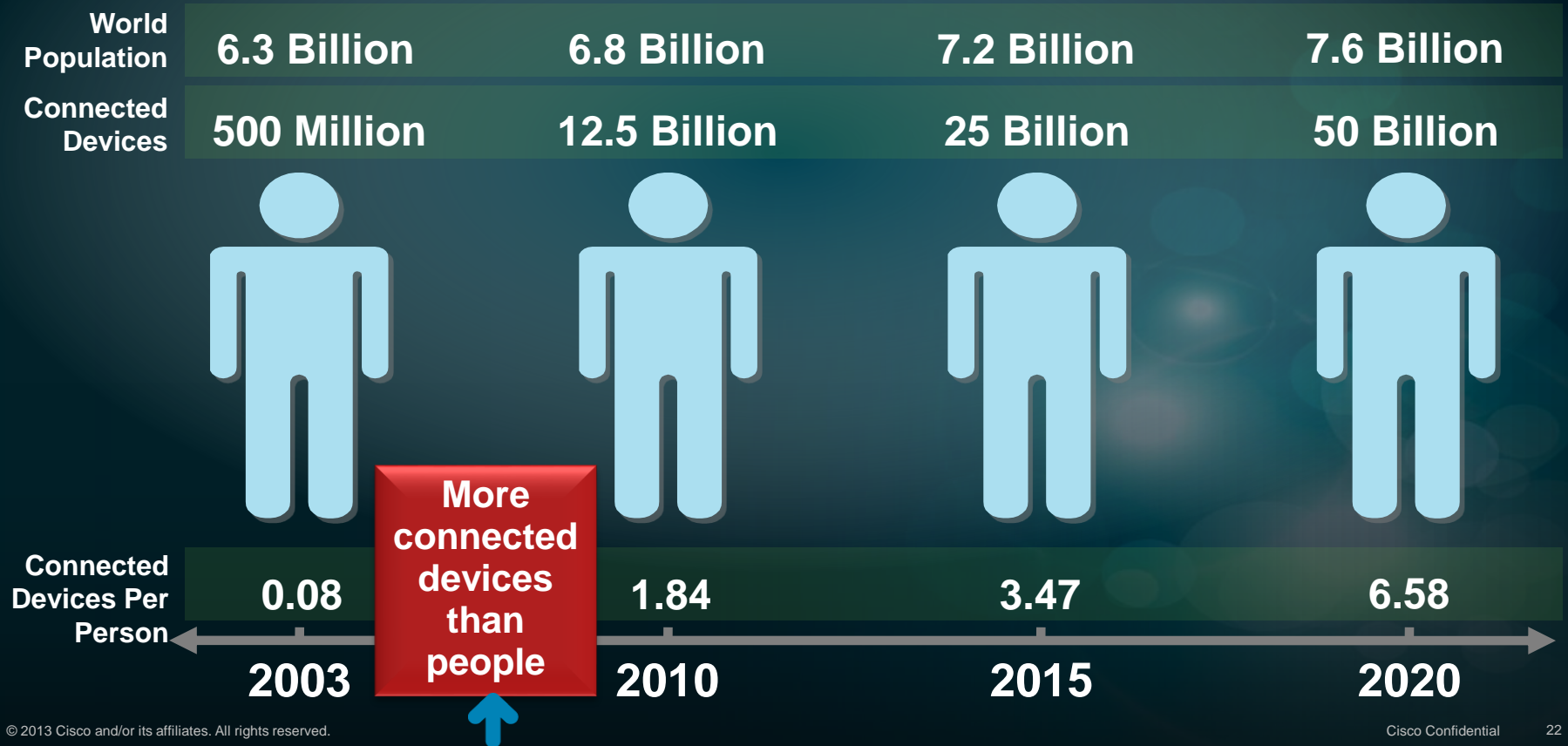


# A Learner's World Has Changed

A generation today...



# The Internet of Things Is Already Here







**PROCESS**



**99%**

*of the World is Still  
Not Connected*



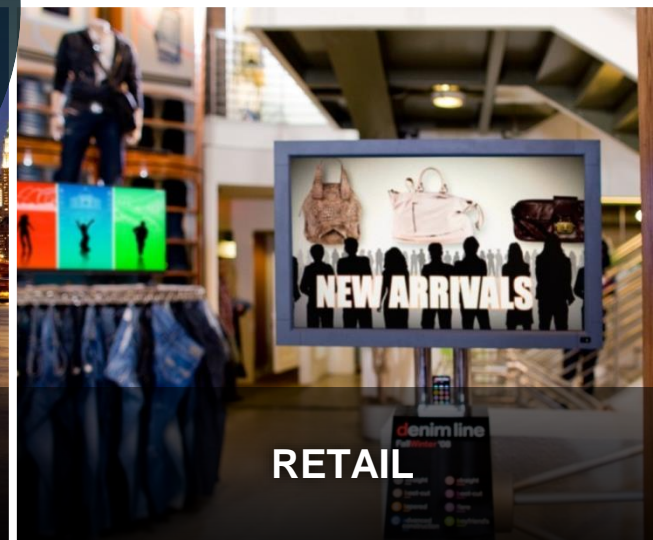
**ENERGY**



**TRANSPORTATION**



**CITIES**



**RETAIL**

# Two laws that you may know

## Metcalfe's Law

More  
connections  
create more  
value

(1980)

## Moore's Law

Technology  
gets cheaper  
and more  
powerful

(1965)

The power of the network is proportional  
to the square of  
the number of users

# Evolution of the Internet

Business and Societal Impact

## Connectivity

Digitize Access to Information

- Email
- Web Browser
- Search

## Networked Economy

Digitize Business Process

- E-commerce
- Digital Supply Chain
- Collaboration

## Immersive Experiences

Digitize Interactions (Business & Social)

- Social
- Mobility
- Cloud
- Video

## Internet of Everything

Digitize the World

Connecting:

- People
- Process
- Data
- Things

Intelligent Connections



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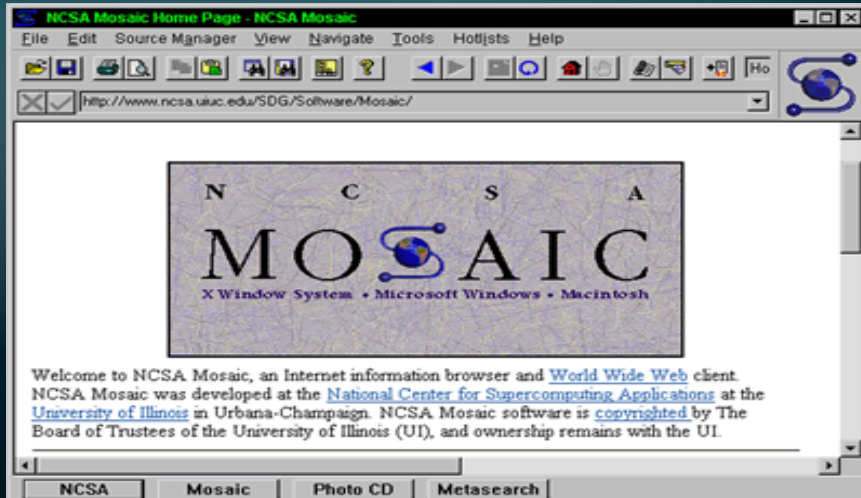
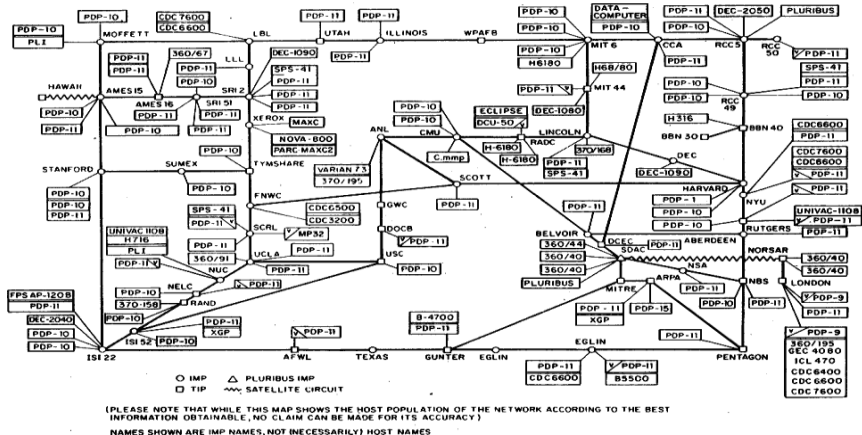
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ARPANET LOGICAL MAP, MARCH 1977



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Intelligent Connections →



250K  
**Status Updates**



100 Hours of  
**Videos**

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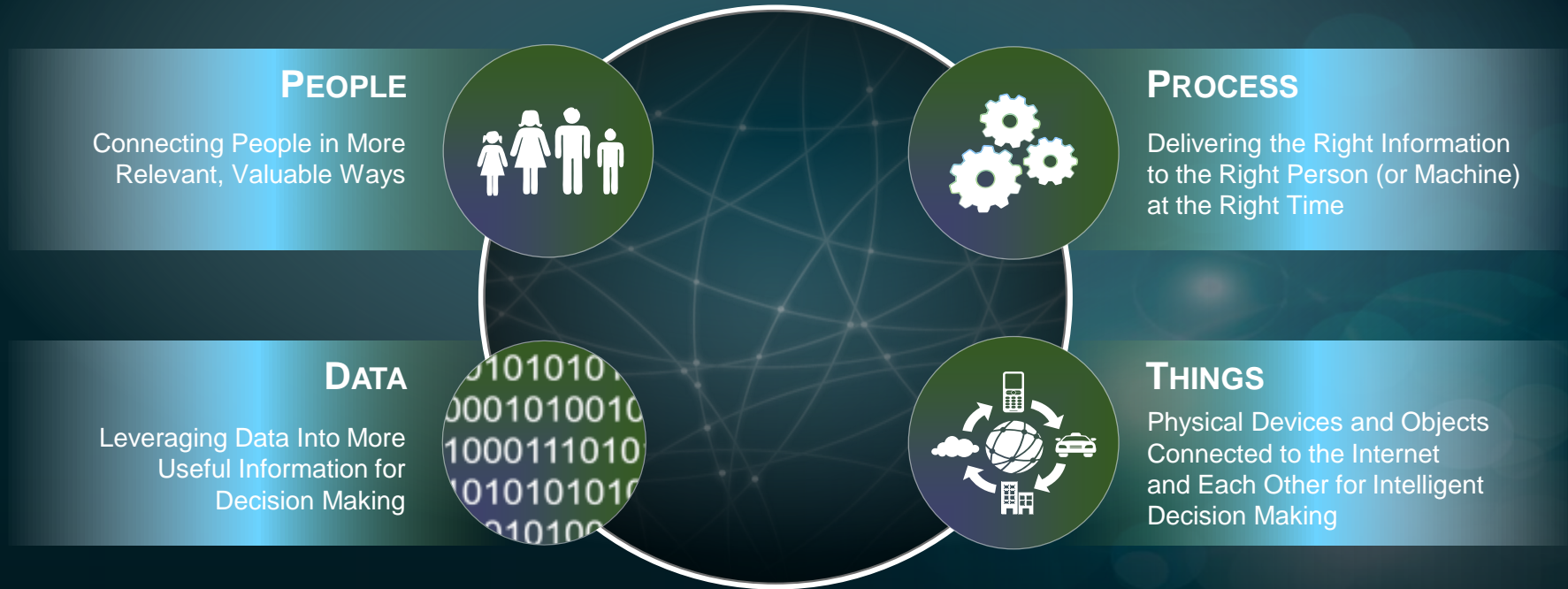
Connecting:

- People
- Process
- Data
- Things

Intelligent Connections →

# What is the Internet of Everything?

Networked Connection of People, Process, Data, Things



Source: "The Internet of Everything: How More Relevant and Valuable Connections Will Change the World," Cisco Consulting Services, 2012



# IoE Consists of M2M, M2P, and P2P Connections

## Connection Type

## IoE Value (2013-2022)



### Machine-to-Machine (M2M)

- Data sent/received from one machine (thing) to another
- Often called the “Internet of Things”

**\$7.4 Trillion**



### Machine-to-Person (M2P)

- Data sent/received from a machine (thing) to a person
- Often called “data and analytics”

**\$4.6 Trillion**



### Person-to-Person (P2P)

- Data sent/received from one person to another
- Often called “collaboration”

**\$7.0 Trillion**



# Joseph Schumpeter

# Same Month



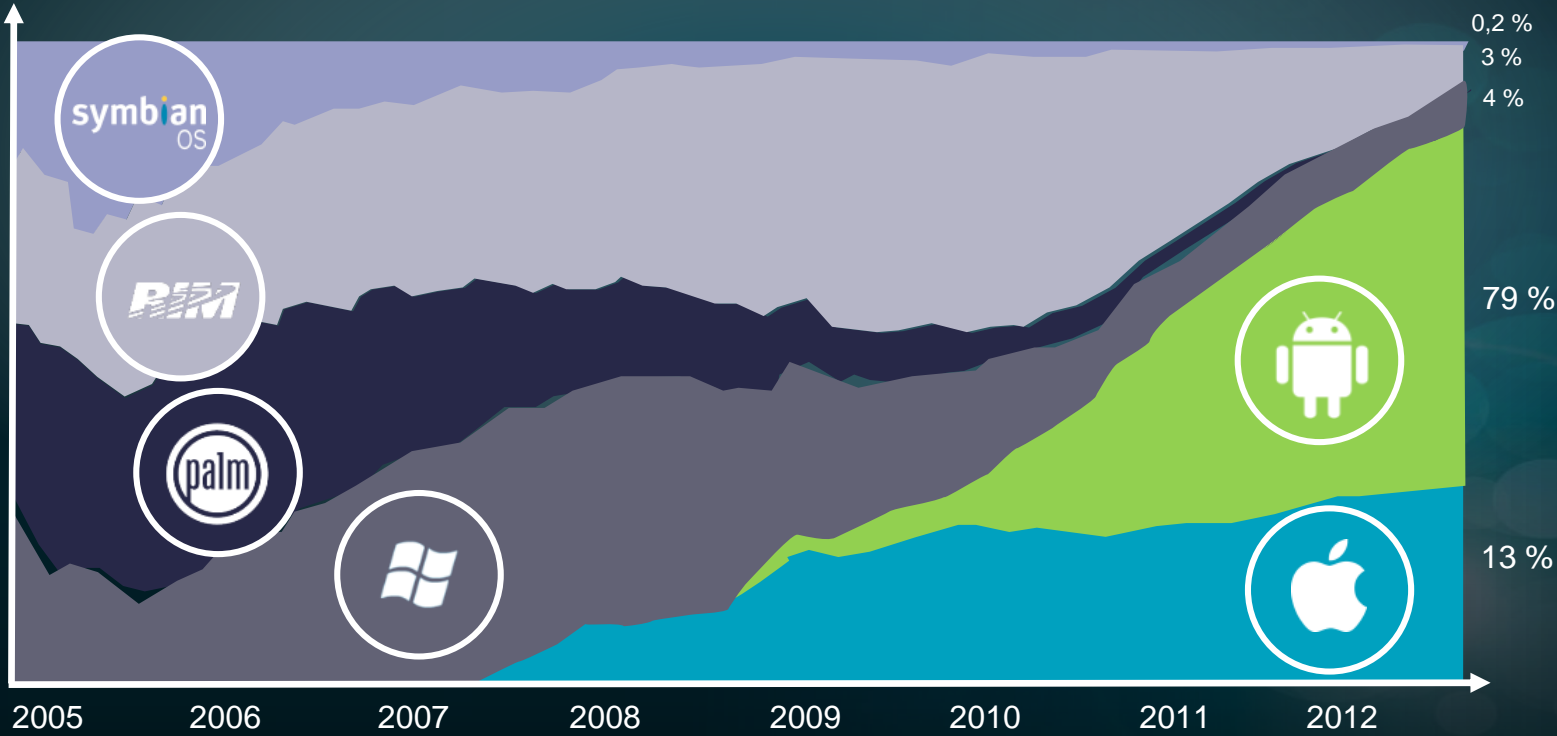
100+ Year-old Company  
Files for Bankruptcy



18 Month-old Company  
Acquired for \$1B



# Smartphones



Source: comScore Mobilens, U.S.; IDC Worldwide Mobile Phone Tracker

# IoE Center of Innovation Berlin



IoE Community  
Ideas



Startups  
Accelerator



Partner  
Rapid Prototyping



Customer  
Experience  
Center

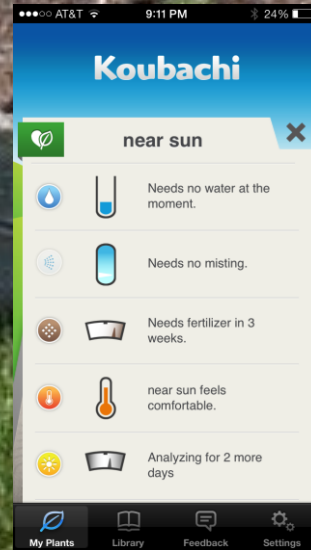
Focus on  
Mechanical Engineering and Transportation/Traffic

# IoE Examples



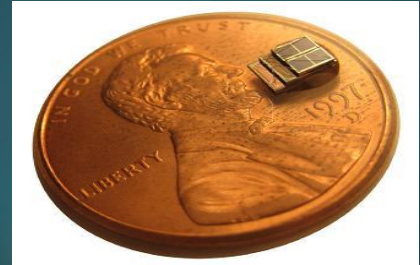
Ikea's vision of a connected kitchen in the Internet of Things | Photo: IKEA



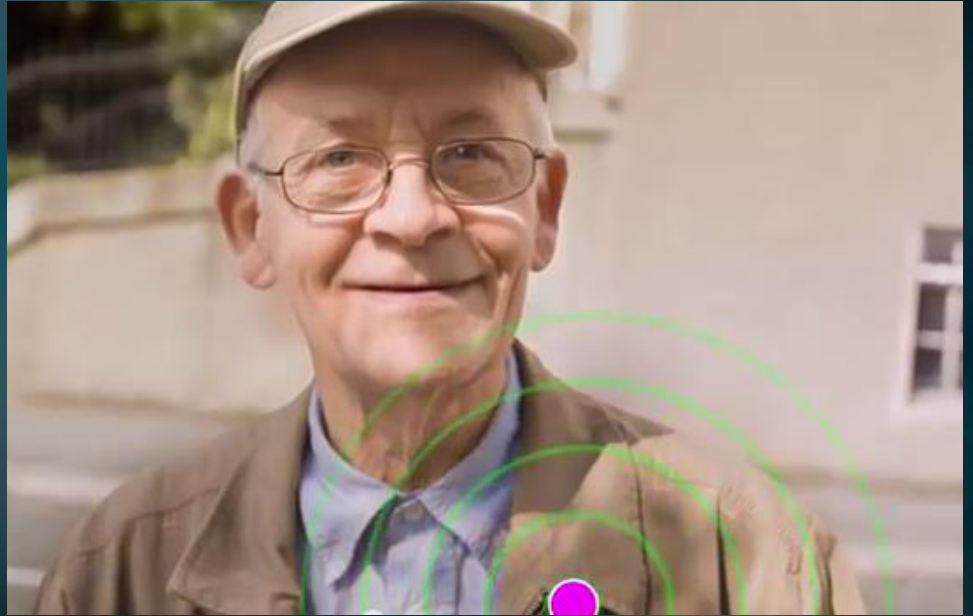


# Koubachi

# Iro









# All Jobs Will Require Technology Competence

Manufacturing



Transportation



Defense



Utilities



Robotics

Automation

Big Data/Analytics

Security



Smart Cities

Healthcare

Retail

Finance



# Summary/Conclusion

- IoT/loE is reality
- IoT/loE competence is required for all jobs
- programming as key competence
- massive influence in our work, social, and private live
- will change how we work, live, play, and learn

We are just at the beginning ...

# Career Opportunities



# What do we offer?





# What do we expect?



# Personal Experience

# There are career opportunities in ...

- Engineering
- Finance
- Global Business Services
- Global Marketing and Corporate Communications
- Human Resources
- Information Technology
- Legal
- Sales
- Services
- Supply Chain Operations



# Sales Graduate Programs (CSAP)

- Associate Sales Representative (ASR)
- Associate Systems Engineer (ASE)



# Services Graduate Programs

- Associate Customer Support Engineer (aCSE)
- Associate Network Consulting Engineer (aNCE)
- Associate Project Manager (aPM)





# Internships

- Cisco Intern Summer Camp – Sales or Systems Engineer
- ...



# Professional Careers



Cisco Networking Academy  
Mind Wide Open

- self-paced and instructor-led online courses
- certification alignment

# What To Do Next?

- Join the Cisco Talent Network.
  - <https://jobs.cisco.com/talentcommunity/subscribe/>
- Subscribe to free NetAcad courses.
  - <https://www.netacad.com>
- Get Career Tips on NetAcad Advantage.
  - <https://www.netacadadvantage.com>

# Discussion/Q&A





**CISCO**

*TOMORROW starts here.*

# Resources

# IoE Resources

Cisco IoE Landing Page

→ <http://www.cisco.com/c/r/en/us/internet-of-everything-ioe/index.html>

The New Economy

→ <https://www.youtube.com/watch?v=ALL6MuFWs1A>

Smart City Barcelona

→ [https://www.youtube.com/watch?v=TCbvxb5t5\\_8](https://www.youtube.com/watch?v=TCbvxb5t5_8)

Smart City Hamburg

→ <https://www.youtube.com/watch?v=FoEPIE8Pg7I>

# Career Resources

## University Careers

→ <http://www.cisco.com/web/about/ac40/univ/index.html>

## Graduate Full-time Entry-level Jobs

→ <https://jobs.cisco.com/go/Full-time-University-Opportunities/528800>

## Graduate Programs – Sales (CSAP): ASR, ASE

→ <http://www.cisco.com/web/about/ac40/univ/programs/sales.html>

## Graduate Programs – Cisco Services: aCSE, aNCE, aPM

→ [http://www.cisco.com/web/about/ac40/univ/programs/cisco\\_services.html](http://www.cisco.com/web/about/ac40/univ/programs/cisco_services.html)

## Internships

→ <https://jobs.cisco.com/go/Internship-Jobs/530300>

## Cisco Intern Summer Camp – Sales

→ <https://jobs.cisco.com/job/Eschborn-Sales-Intern-%28Germany%29/240400500/>

## Cisco Intern Summer Camp – Systems Engineer

→ <https://jobs.cisco.com/job/Eschborn-Systems-Engineer-Intern-%28Germany%29/234710500/>

## Cisco Networking Academy Program

→ <https://www.netacad.com>

## Cisco NetAcad Advantage

→ <https://www.netacadadvantage.com>

## Professional Careers

→ [http://www.cisco.com/web/about/ac40/about\\_cisco\\_careers\\_featured\\_job.html](http://www.cisco.com/web/about/ac40/about_cisco_careers_featured_job.html)

## Hiring Process

→ [http://www.cisco.com/web/about/ac40/about\\_cisco\\_careers\\_hiring.html](http://www.cisco.com/web/about/ac40/about_cisco_careers_hiring.html)

## Questions? Ask Us!

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- **Tim Heckmann**  
Network Consulting Engineer  
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