

# The Internet of Everything



# Our "Connected World" Is Still Mostly Unconnected

**99.4%**  
of "things" are  
unconnected

With only 10B of 1.5T “things” connected globally,  
there is vast potential in connecting the unconnected

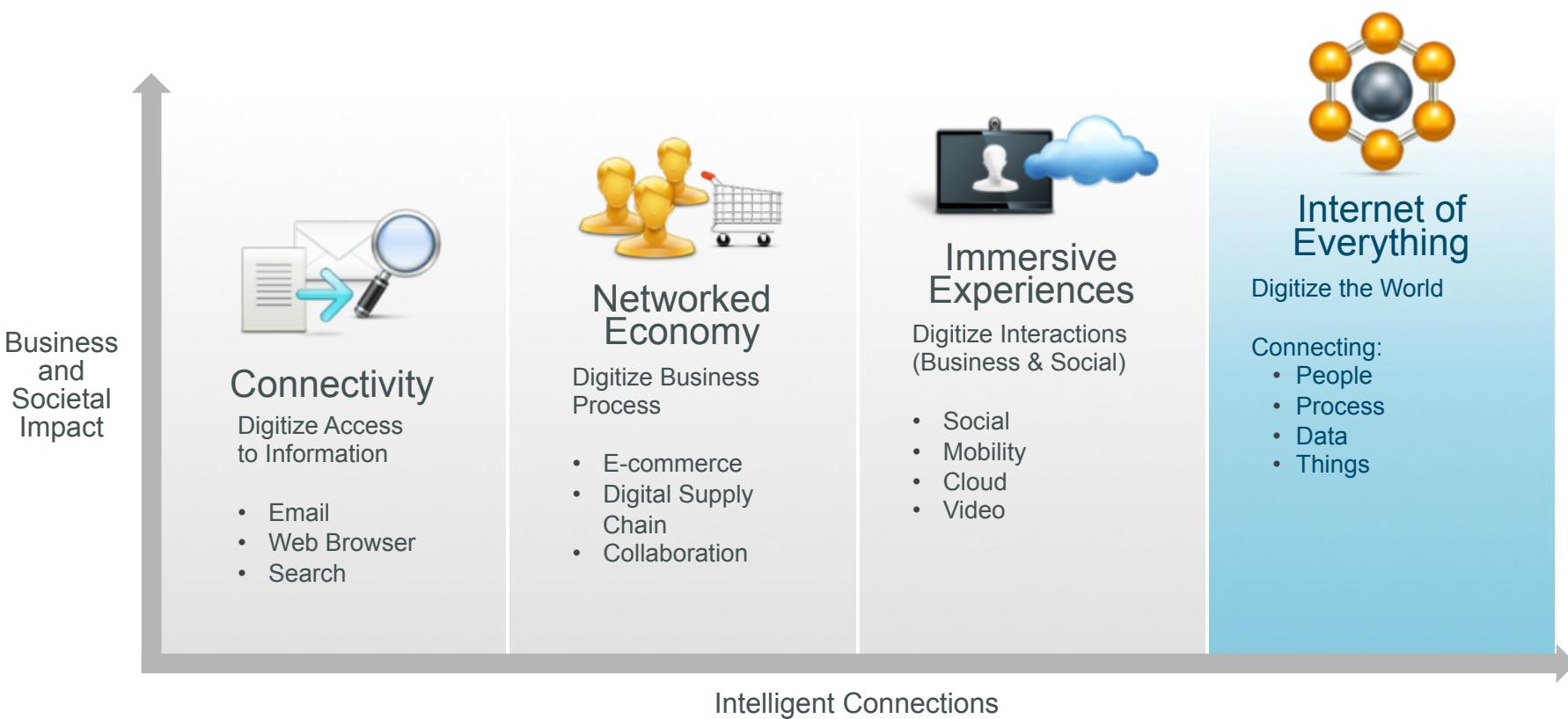
**96.5%**  
of things are  
consumer objects

The consumer segment accounts for the vast majority  
of “things” in the world

**Value  
vs  
Connections**

It is the combined value of these connections which is  
more significant than the number of “things”

# The Evolution of the Public Internet



# A History of Connections

170 Years Ago:  
Invention of the Telegraph

100 Years Ago:  
Invention of the Radio

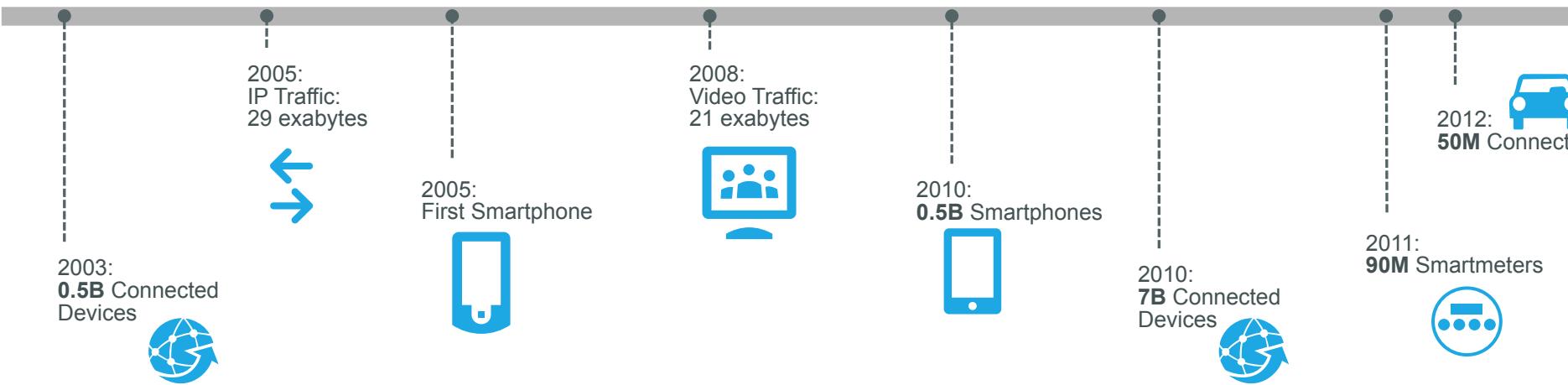
70 Years Ago:  
First general purpose  
electronic computer

40 Years Ago:  
First Internet  
connection

20 Years Ago:  
World Wide Web



## Intelligently Connecting People, Process, Data, and Things



# Intelligent Network Transforms Business and Consumer Experiences

## Connecting the Unconnected

Intelligent Infrastructure



Rapid Service Creation and Market Agility



Secure, Unified Experiences



Connecting to More Things for Greater Insight



# Why is this important ?

## The Internet of Everything

Create and Expand New Markets and Services



Create Better Experiences to Build Better Relationships



Empower People/  
Increase Efficiency

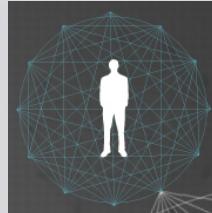


Deeper Insights  
for Better  
Decision Making



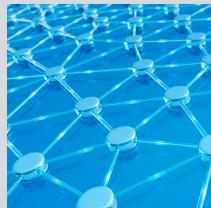
# People, Process, Data, and Things Defined

## People



As the Internet evolves toward IoE, we will be connected in more relevant and valuable ways

## Process



Allows people, data, and things to work together to deliver the right information to the right person or machine at the right time in the appropriate way

## Data



Devices typically gather data and stream it over the Internet to a central source, where it is analyzed and processed; devices will become more intelligent by combining data into more useful information

## Things



Physical items connected to both the Internet and each other will sense more data, become context-aware, and provide more experiential information

Source: Cisco IBSG, 2013

# IoE Creates Increasingly Relevant, Valuable, and Secure Connections

- **Metcalf's Law**

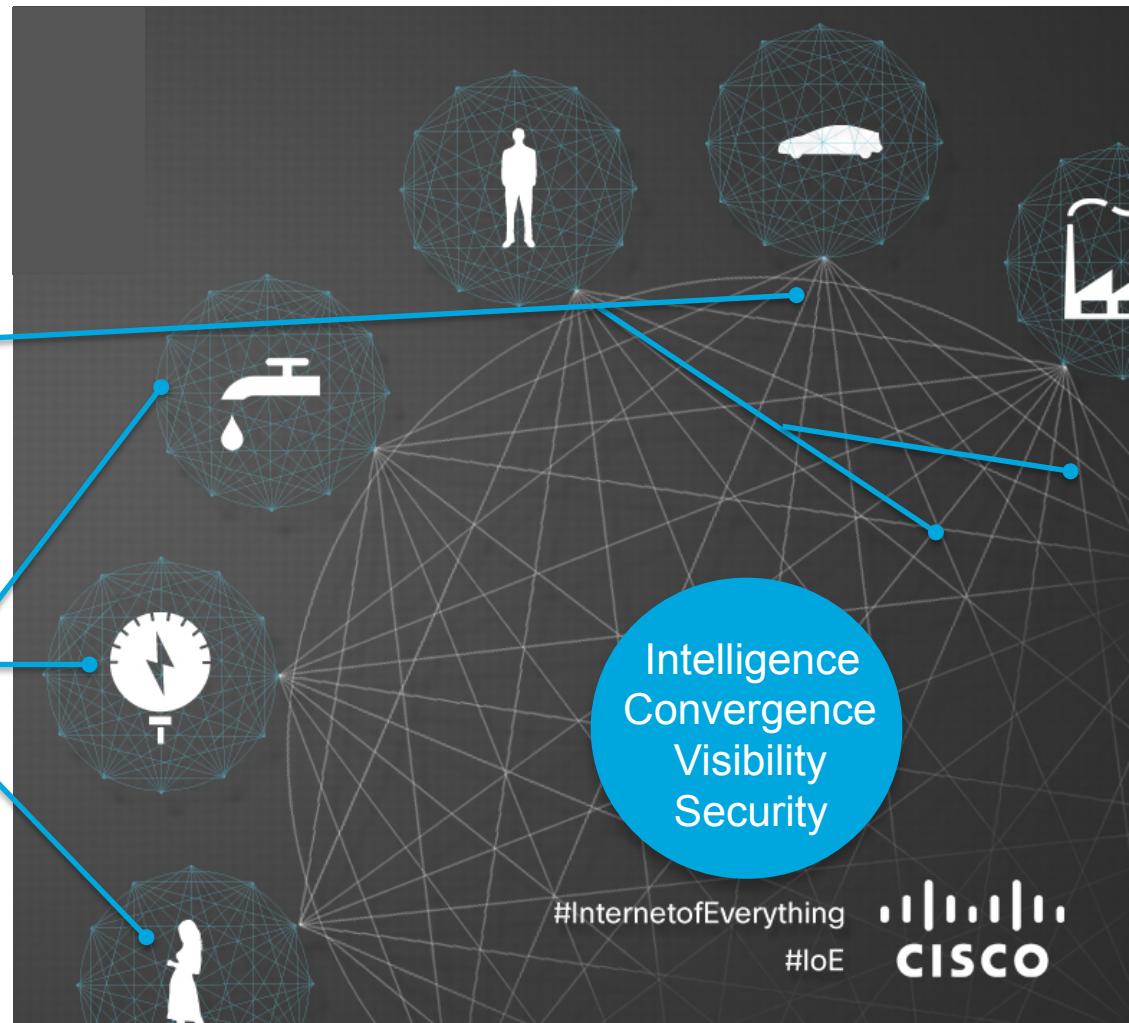
Defines the value of a network by the number of connections within it

- **Connections**

Available, secure, private, comprehensive, accurate, timely, relevant, rich, valuable

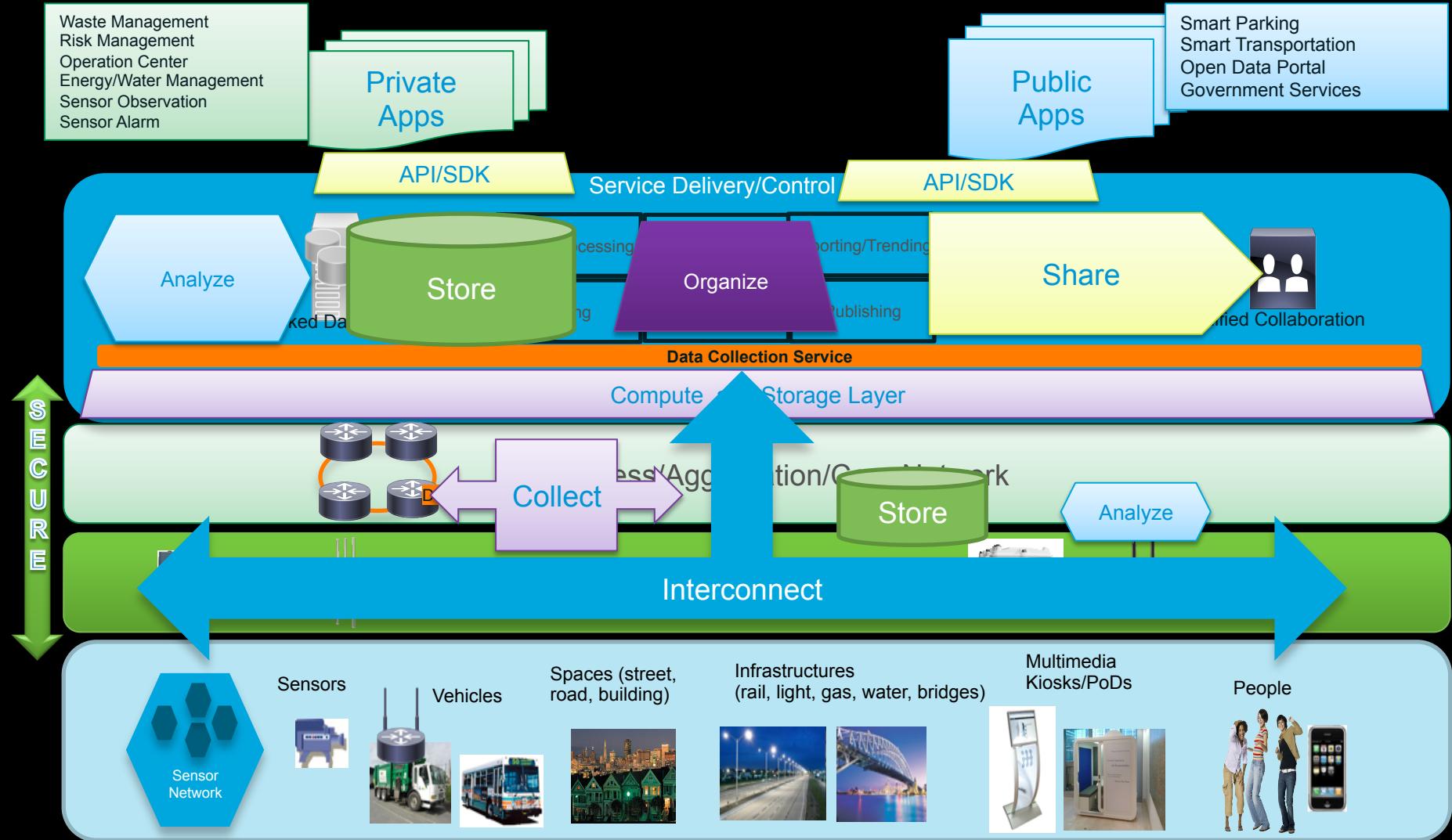
- **People, data, things**

Context awareness, increased processing power, greater sensing abilities



Source: Cisco IBSG, 2013

# Only When Combined Can True Potential Be Unlocked





# Cisco's Role in London 2012

# Cisco's role as Supporter of London 2012

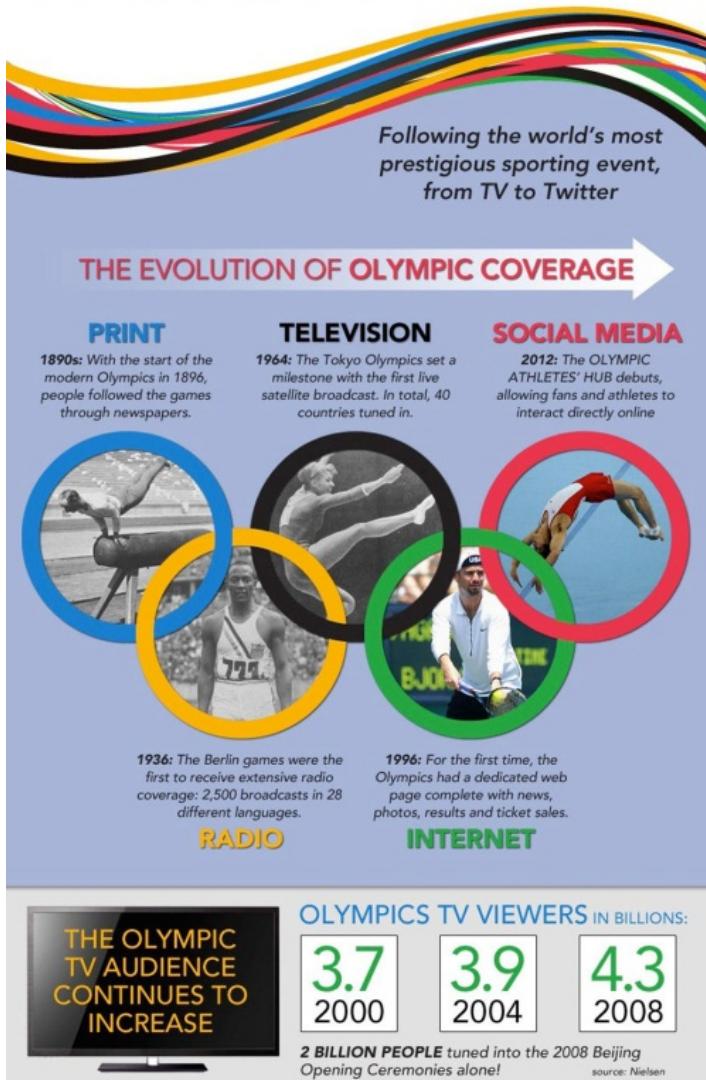
- **Official Supporter of the Olympic and Paralympic Games**
- **Official Network Infrastructure Supporter of the Olympic and Paralympic Games**
- **Cisco was a ‘mission critical’ supporter of the London 2012 Games**
- **The London Games were the ideal platform to demonstrate Cisco’s Vision and Transformational Capabilities**



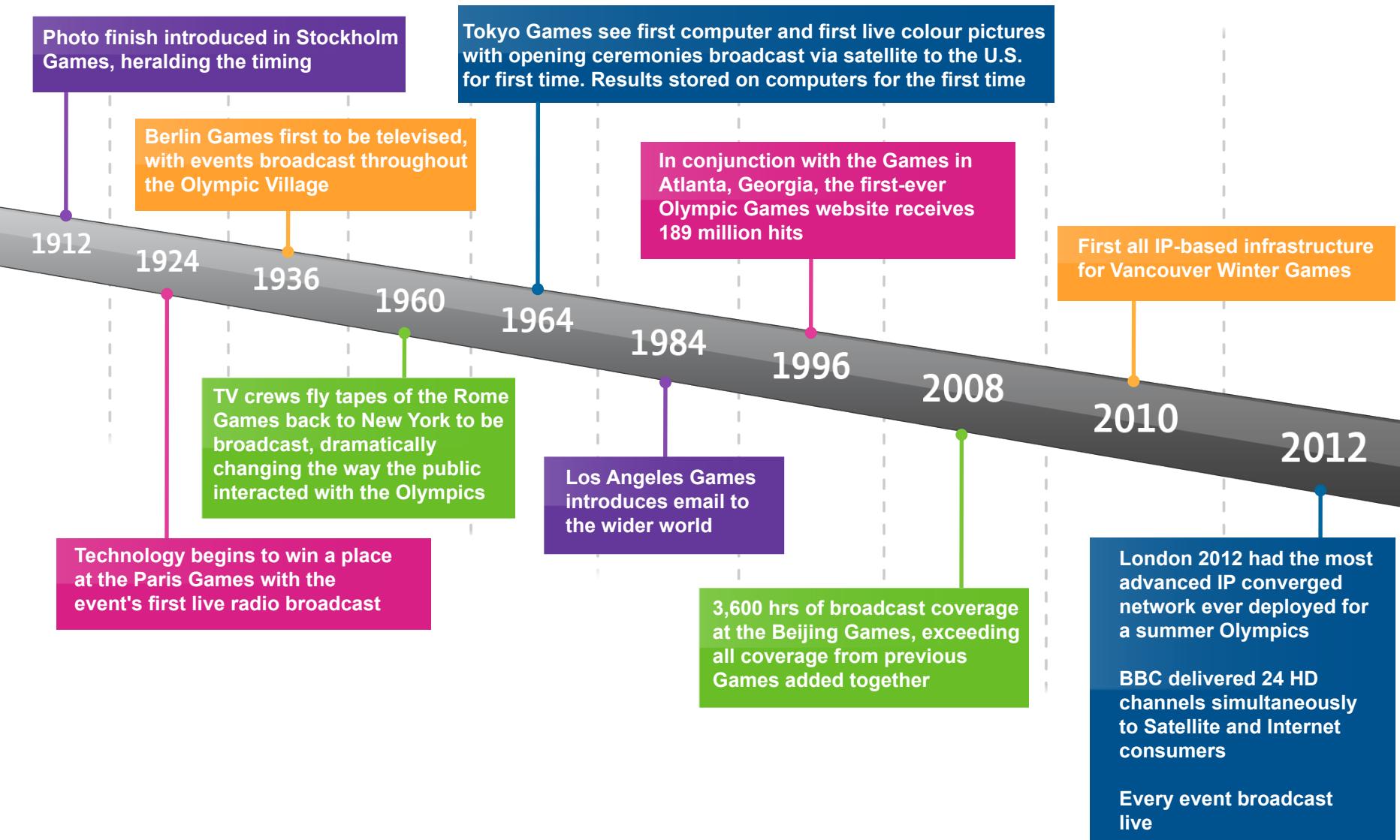
ParalympicsGB

# Embracing the Digital World

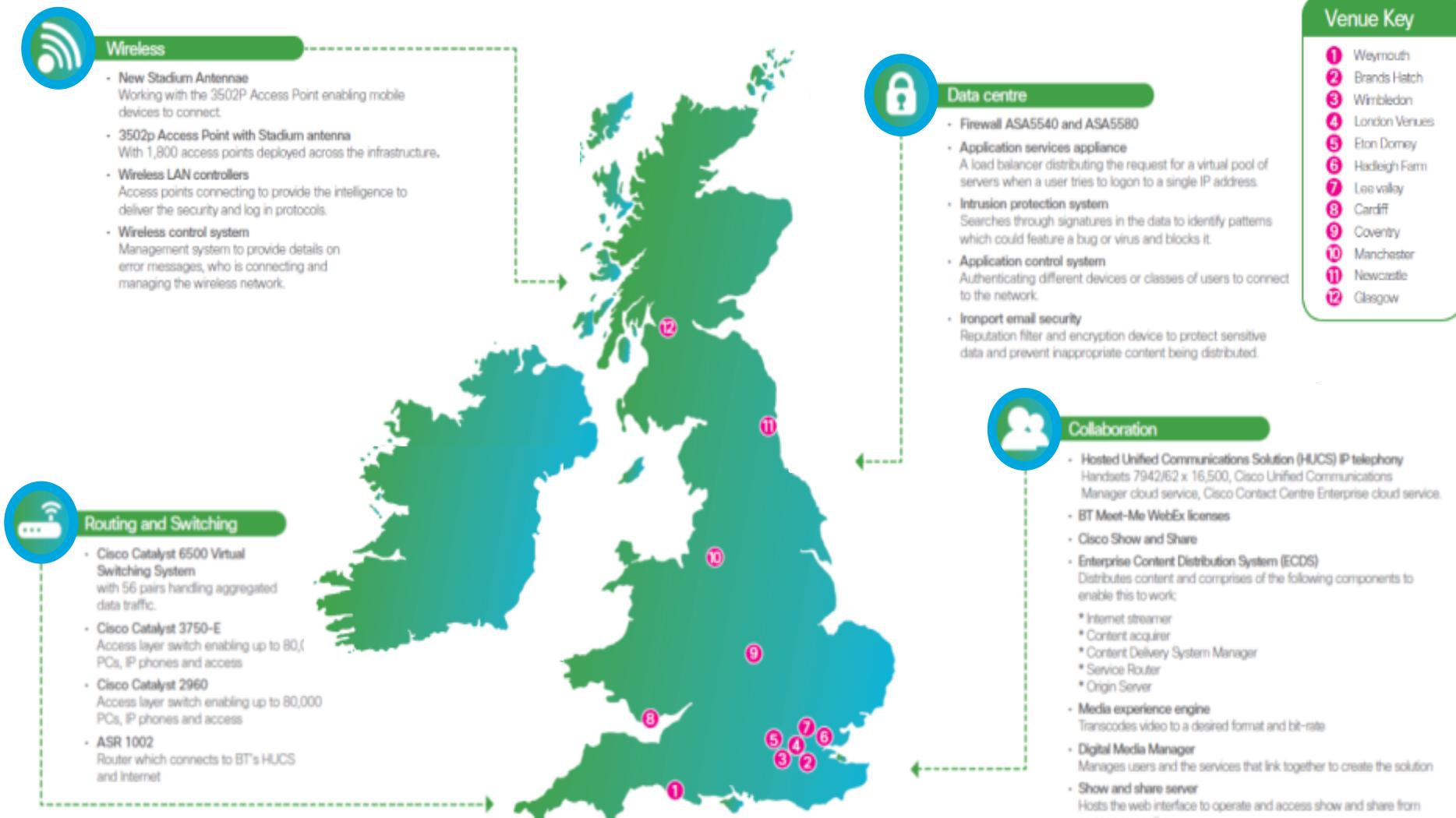
## THE OLYMPICS



# Olympics and Technology Adoption Through Time



# Cisco's network infrastructure: 100+ sites



# Scale of London 2012 Technology

- 10,500 Athletes
- 4,200 Paralympic Athletes
- 20,000 Press & Media
- 205 National Broadcasters – 5+ billion viewers
- 8.8 million tickets
- 180,000 Spectators per day in the Queen Elizabeth Olympic Park
- 200,000 hours of testing
- 80,000 connections across ~94 different locations
- 1800 Wireless Access Points
- 16,500 IP Phones
- 14,000 mobile phones with 3G off load
- 14,000 cable TV outlets
- 900 Servers
- 100 High-end switches



# Foundation of the EcoSystem

Delivery to the end points

Integrating the systems

Supplying the infrastructure



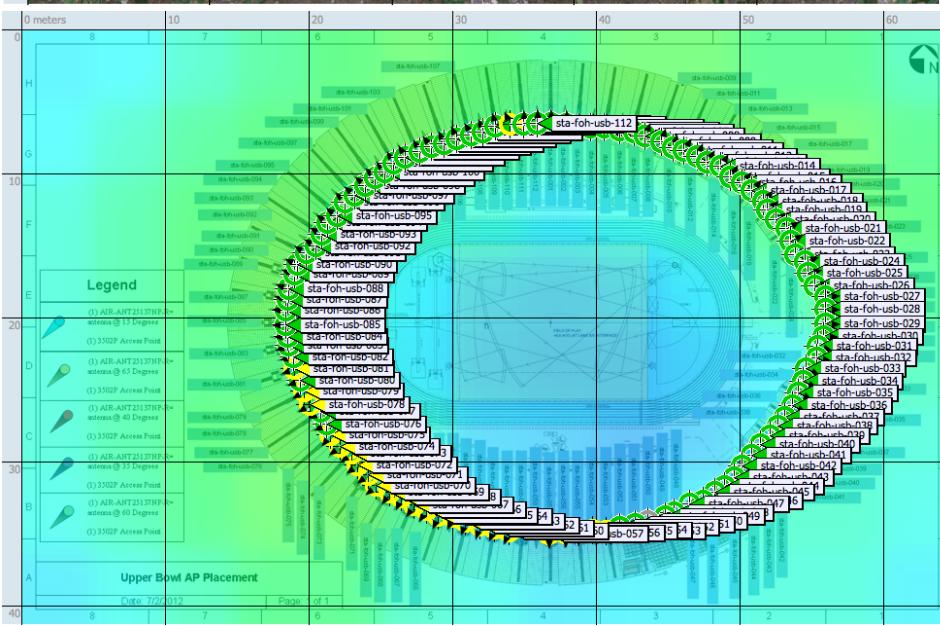
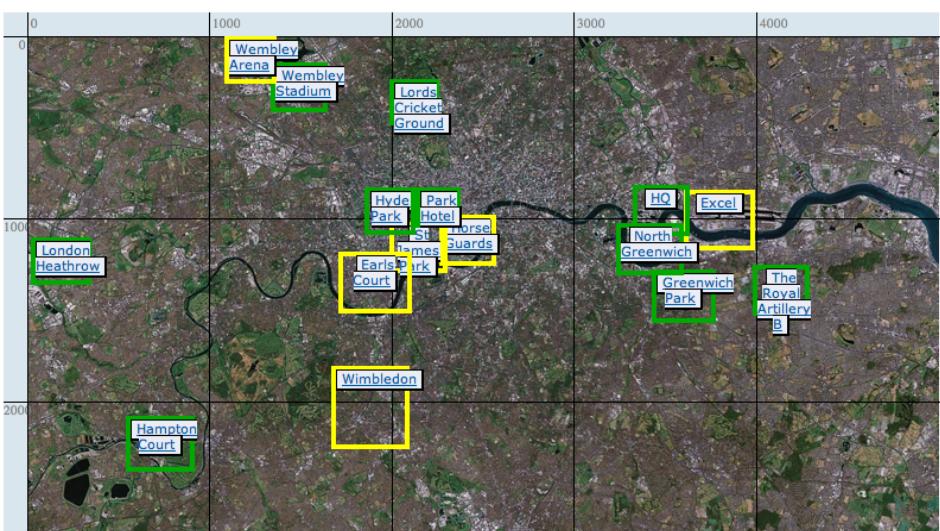
# Wireless For London 2012

- **Enterprise Wireless for LOCOG Staff**
- **Hot-Spot Wireless for Rate-Card Internet access**
- **Wireless Mobile Offload for Olympic Family**
- **Public WiFi in all Venues**
- **3G Offload and Aggregation For SP's**

# Complexity of WiFi – Challenge for IoE



# Delivering Un-Precedented Wireless Scale

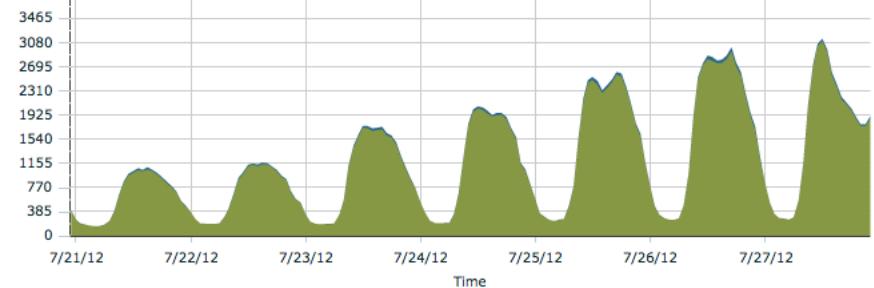


Client Count By Wireless/Wired

All | Wireless | Wired

6h | 1d | 1w | 2w | 4w | 3m | 6m | 1y | Custom | View History

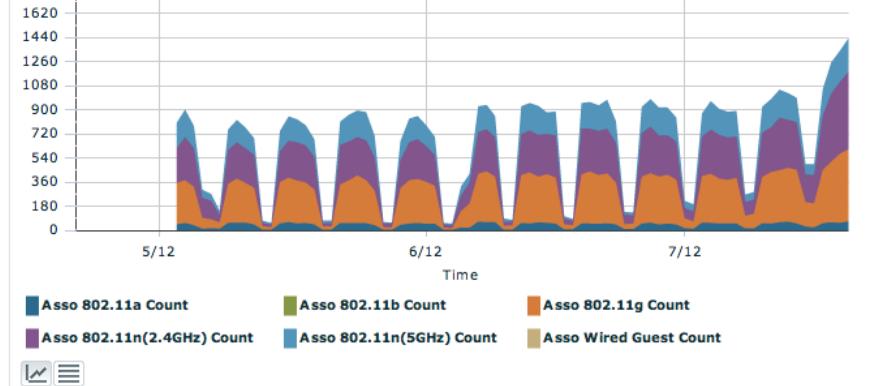
Client Count ( overlaid )

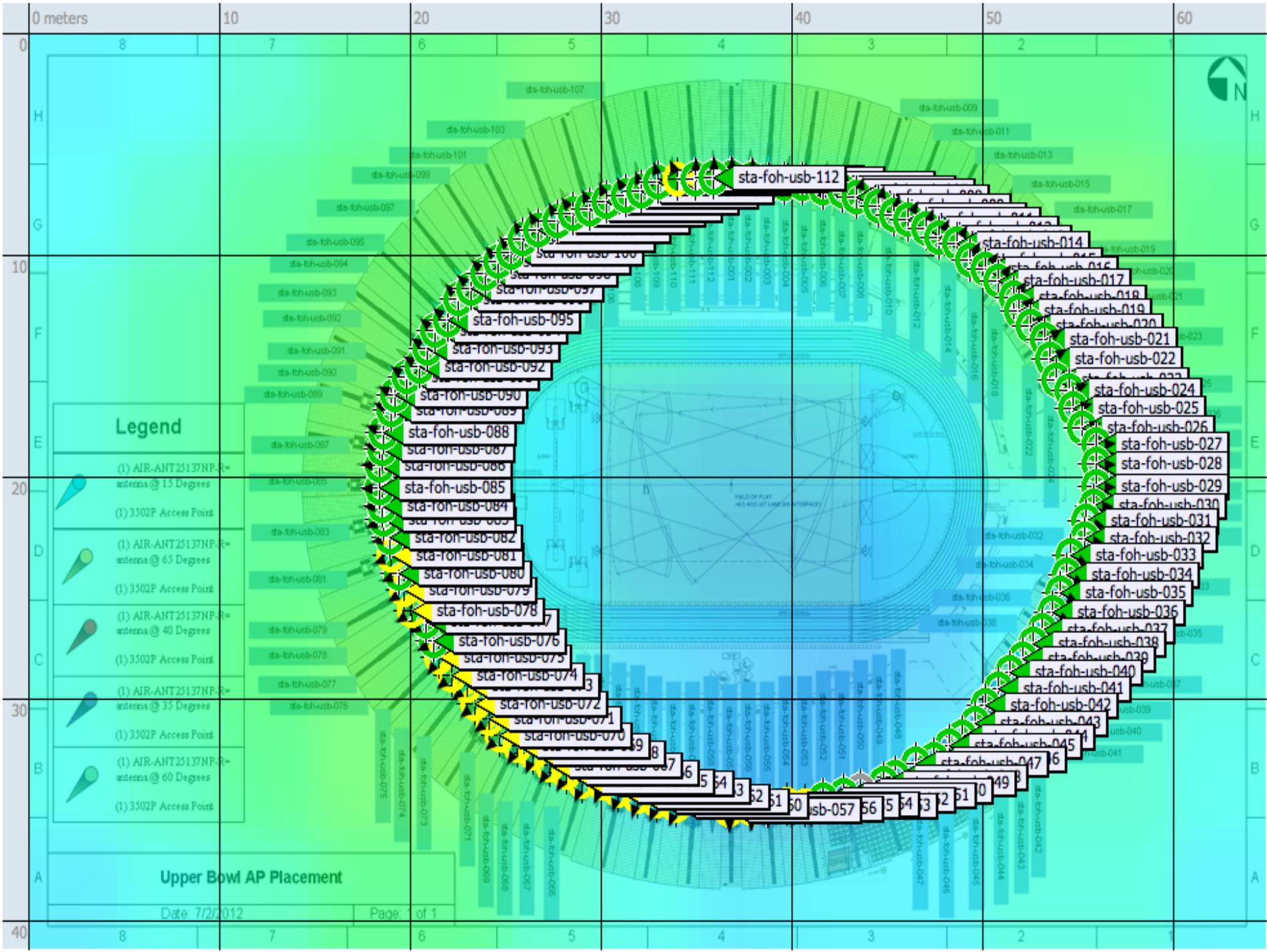


Client Count By Wireless/Wired Edited

6h | 1d | 1w | 2w | 4w | 3m | 6m | 1y | Custom | View History

Client Count ( stacked )





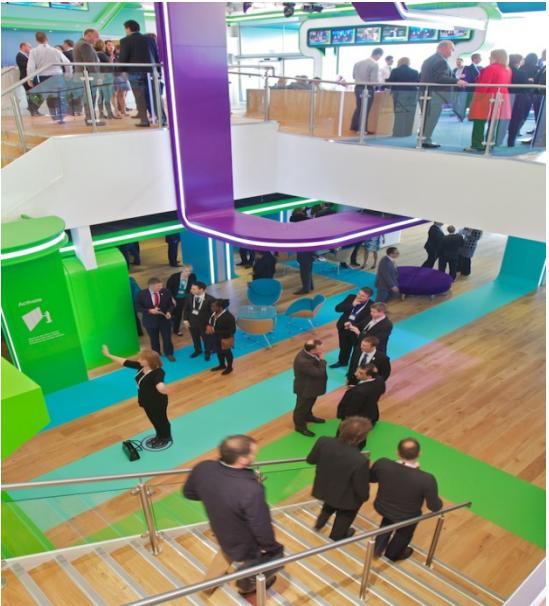
# Wireless Delivering Ubiquitous Connectivity

- WiFi instrumental to the delivery of the most “connected games”
  - Driven by Twitter, Facebook and other social media
- Over 1.2 Million WiFi devices connected to the network
- Peak Usage close to 25k concurrent within the Olympic Park
- Over 29TB of data offloaded from the 3G network
- Over 39 Million sessions handled with 14 help desk calls

# Cisco House - Creating a Window to the Future

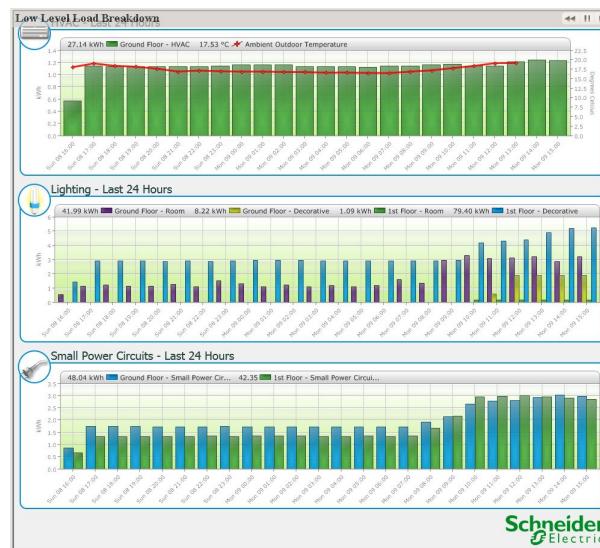
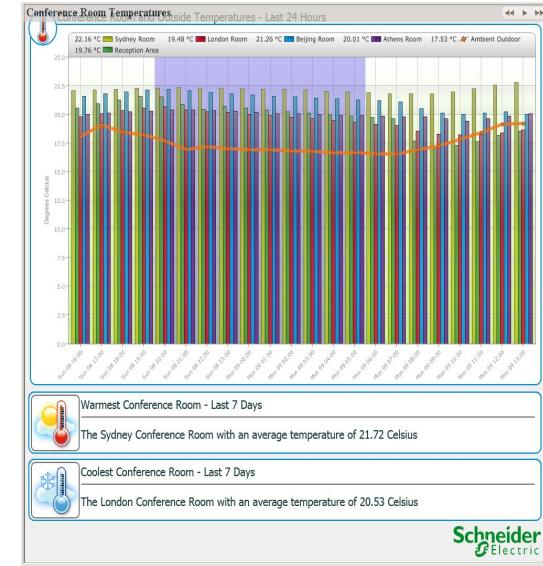
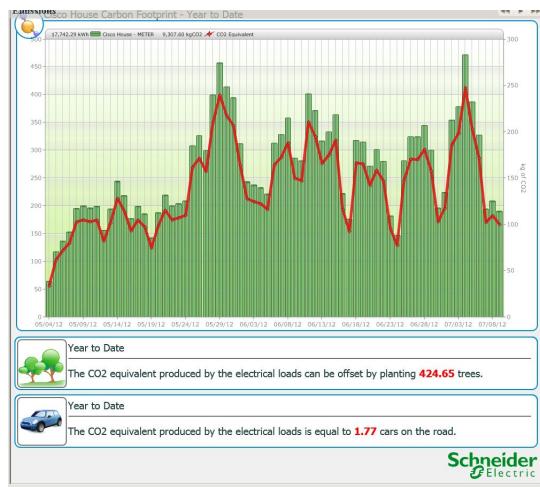


# Cisco House ....



# A Completely Connected Environment

- Create a totally connected experience
- Every System and Platform Connected
- Environmental Monitoring
  - Heat, Cooling, Light, Power
- Private Cloud
- All Systems Virtualised
- Video over IP
- TV, Tablet, Phone
- Centrally Controlled Signage
- Re-brand entire facility in minutes



# Olympics Technology in the Future

- Real Time Athlete Telemetry
  - Physiological Monitoring
  - Accurate Timing
- Deeper Venue Engagement
  - Connect Spectators to Content
- Improved Viewer Engagement
  - Companion Screens, more content sources
- More Connected Real Estate
  - Manage Crowds
  - Environment
  - Transport



# In Closing

- **Internet of Everything re-defines the value of the network**
- **Built on a firm Network and Compute foundation**
- **Driven by an Ecosystem of Research and Development**
- **Driving investment across industry, community and consumer**
- **Cisco is at the Heart of building this Ecosystem**
- **Rio 2016 has potential to deliver greater insight and engagement**



# Questions ?