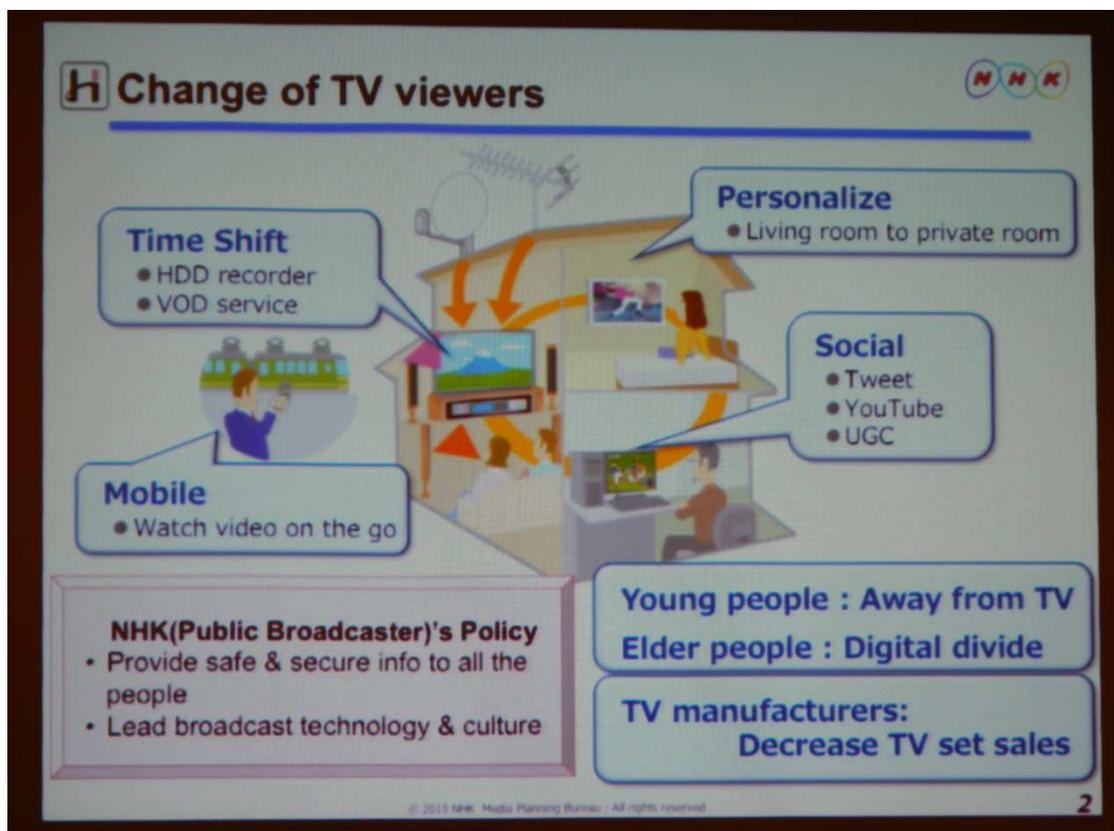
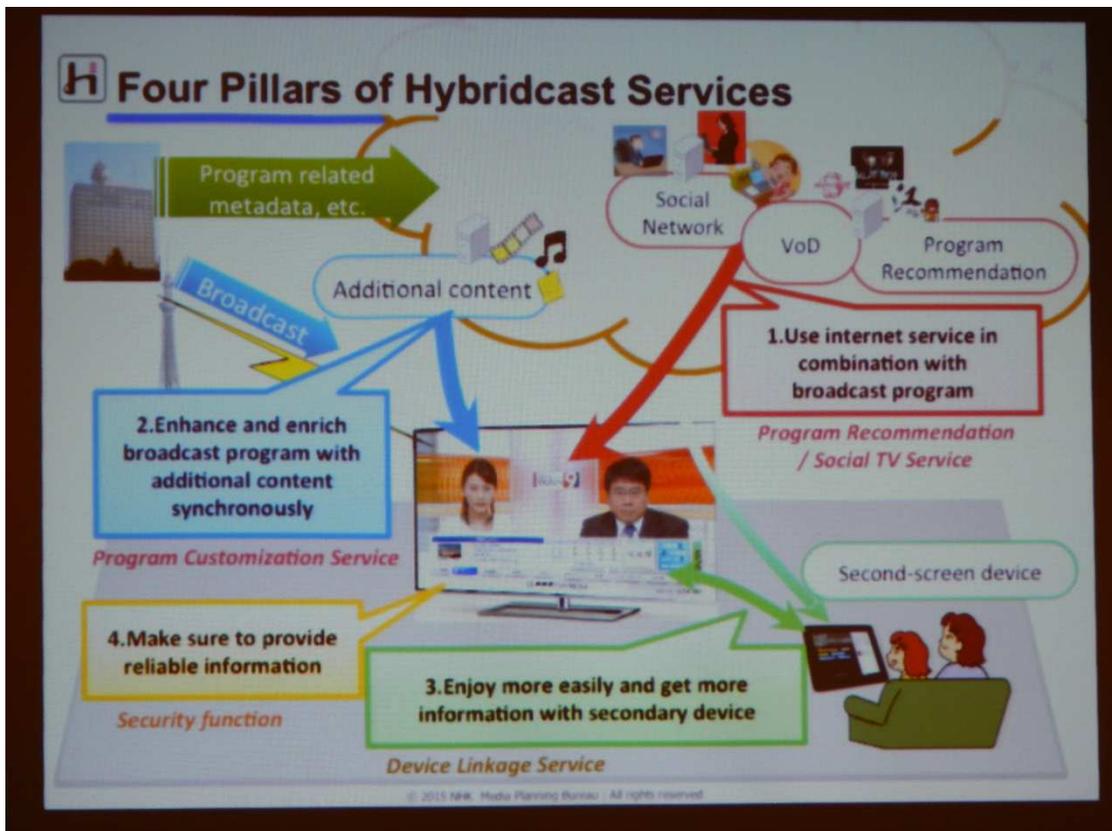
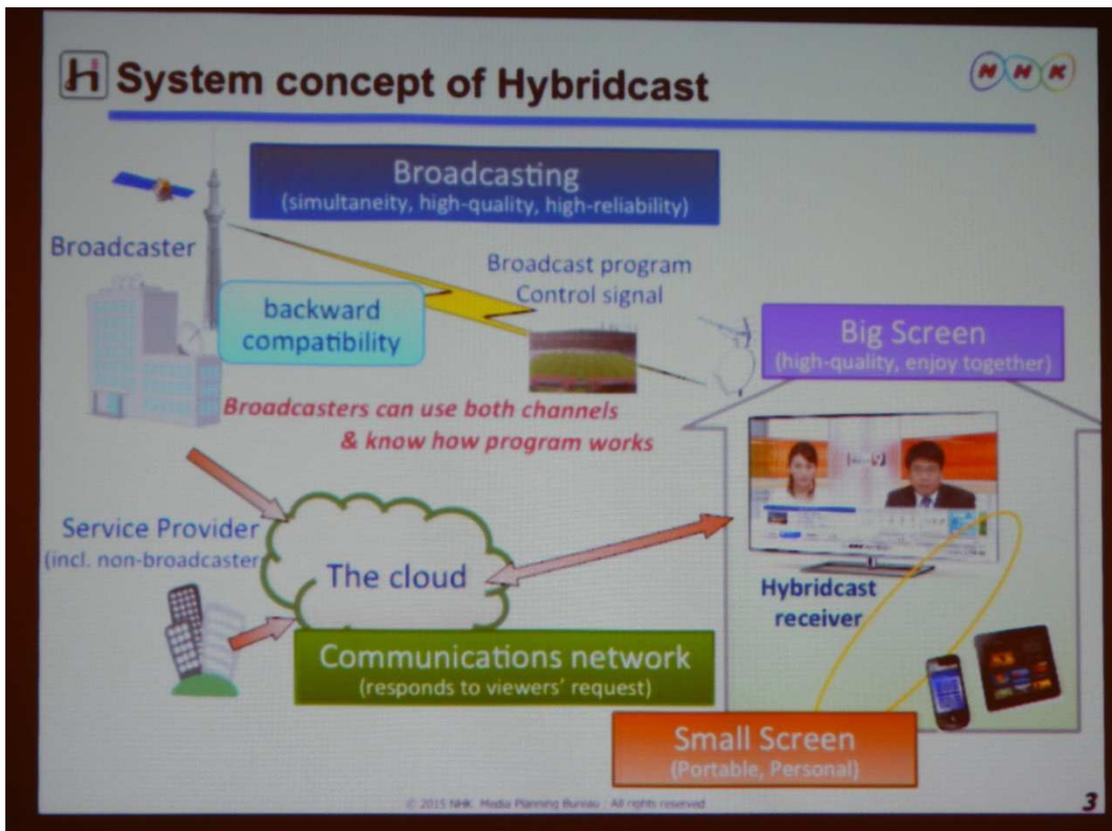


二、附件二：會議簡報資料





h Current Services : NHK's PR video NHK

h **NHK** Hybridcast

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5

h Current Service Examples NHK

Hybridcast Home	Program Information	Scroll News	News on Tablet
Weather	Sports	Market	Program Guide
Quiz	Cooking	Kids	Keyword Connect
Business	Educational	Travel	

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6

h Current Service Examples



6

h Standardization :Based on HTML5 technology



W3C is discussing for applying HTML5 browser technology to TV as well as PC



International Standard (W3C)

Operational Ability

Multi Devices

Advanced Expressions & Functions

Developer & User Friendly

Expand functions for using broadcast resources on HTML5 browser

In March 2013, IPTV Forum Japan released "Hybridcast Technical Standard v1.0"

In June 2014, IPTV Forum Japan released "Hybridcast Technical Standard v2.0"

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7

h Why HTML5 ?



- ➔ State-of-the-art browser technology
- ➔ World wide standard
- ➔ Can be adopted for future TV, e.g. 4K/8K
- ➔ Introducing Internet technology into TV based services easily
- ➔ Most TV sets have HTML5 browser as a basic function
- ➔ Many experienced content creators can use this environment



Expand Broadcast Business with Internet

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8

h Hybridcast ready TV set in the market



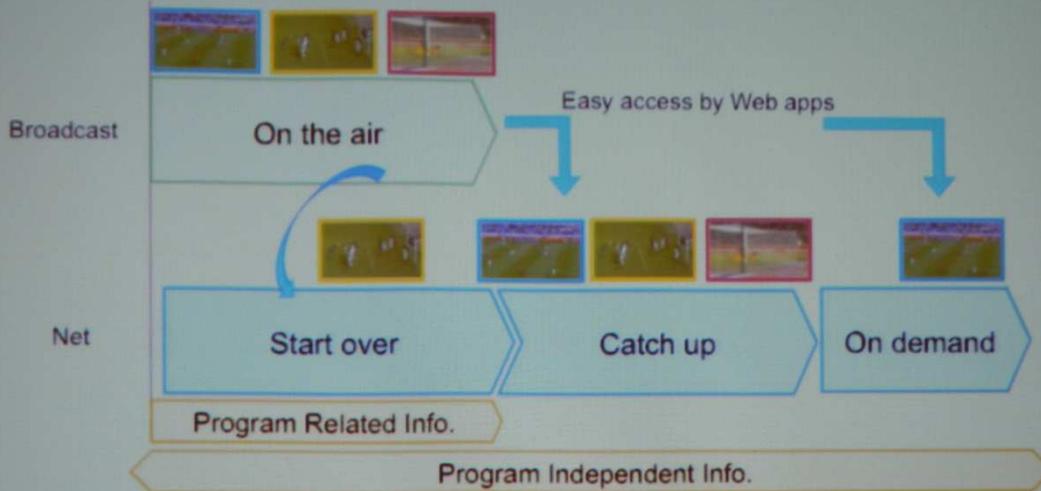
Manufacturer	TV model	Bold : 4K model
TOSHIBA	Z10X series, Z9X series, Z8X series, J10X series, J9X series, Z8 series, Z7 series, J8 series, J7 series, G9 series	
Panasonic	AX900/AX900F series, AX800/AX800F series, AX700 series, AS800 series, AS650 series, WT600 , VT60 series, FT60 series	
SHARP	U20 series, UD20 series, XL10 series	
MITSUBISHI	LSR6 series, LSR5 series, BHR6 series, BHR4 series	
SONY	X8500B series, X9500B series, X9200B series, X900B series, X800B series, X700B series, X600B series <u>X9200A, X8500A, W920A, W900A, W802A, W650A series (to be update)</u>	
LG Life's Good	UB9800 series, UB9500 series, UB8500 series, LA9700 series, LA9650 series, LB6700 series, LB9800 series	

1,500,000 TV sets in the market by the end of November

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9

h Video delivery business by Hybridcast



Broadcast contents and their related information can be handled on HTML5 browser anytime

h Issues to be resolved for enhancing Hybridcast services



Institutional:

- ➔ Broadcast raw
- ➔ Contents rights
- ➔ Personal data
- ➔ Introducing third party creators

Technical:

- ➔ Harmonization of browser function in each TV set
- ➔ Penetration of new TV sets
- ➔ Improve network connectivity of TV set



Thank you
for your attention

PTC 2015
Sunday, 18 January 2015

Research Workshop: Evolving Business Strategies for Smart TV and
Smart Phone - An International Comparison

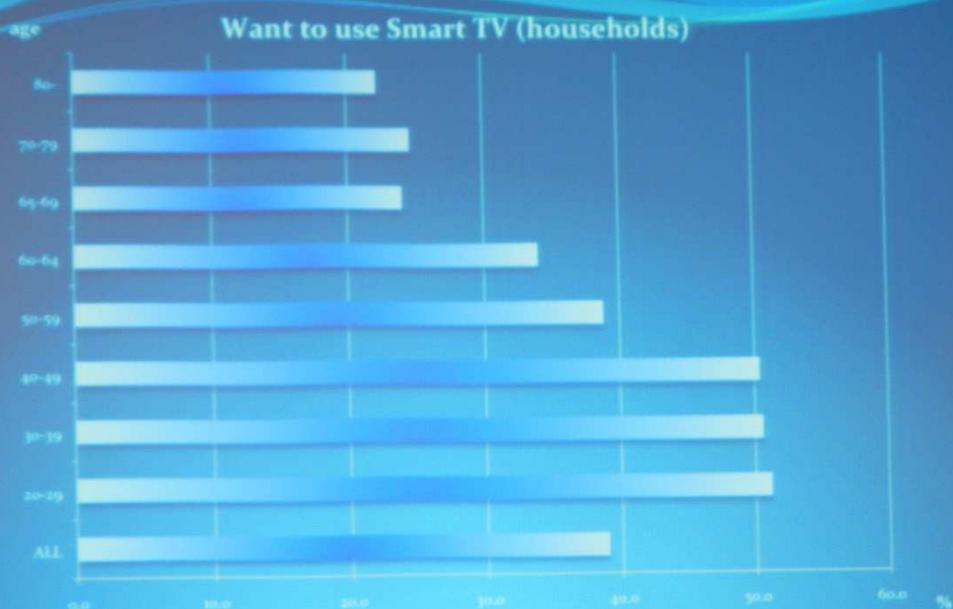
New Public Role of Japanese Broadcasters in the Era of Smart TV

- The Case of JOINTOWN@Tokushima -

Noriko Wakihama, Ph.D
Anchor, Yomiuri Telecasting Corporation

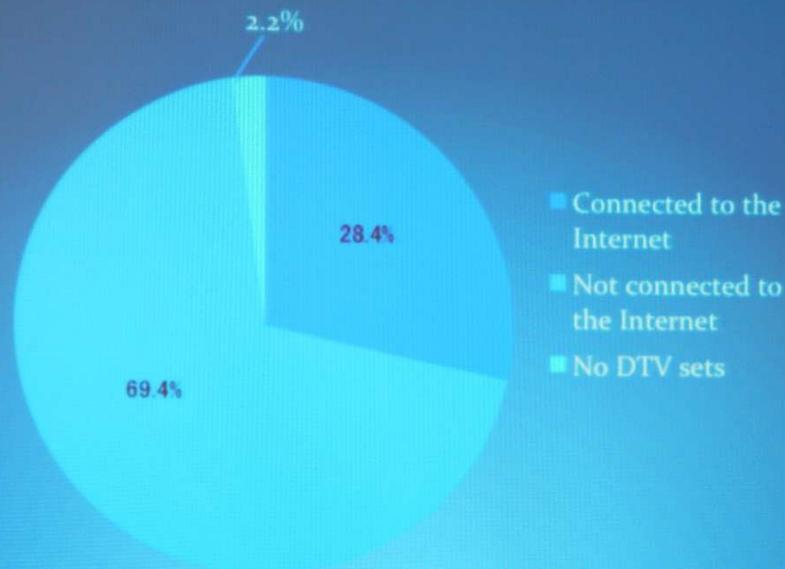
Overview

1. Current status of smart TV in Japan
2. What is the Jointown project in Tokushima?
3. Top priority issues in Japanese society
4. What is JoinTV?
5. Prospects and challenges



(Source) MIC "2012 Communications Usage Trend Survey"

Households with DTV sets in Japan



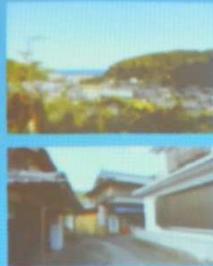
(Source) MIC "2013 Communications Usage Trend Survey"

What is the JOINTOWN project?

- A disaster assistance and elderly support project launched by Nippon Television Network Corp. (NTV), Shikoku Broadcasting Co. (NTV-affiliated local station), and local governments
- An experimental program subsidized by The Project to Promote ICT Town Development of The Ministry of Internal Affairs and Communications (MIC)
- Utilizes the "JoinTV" platform, which is the TV program-linked social interactive service developed by NTV
- Utilizes datacasting technology of digital terrestrial broadcasts, therefore **no additional equipment** is required

The Jointown project in Tokushima

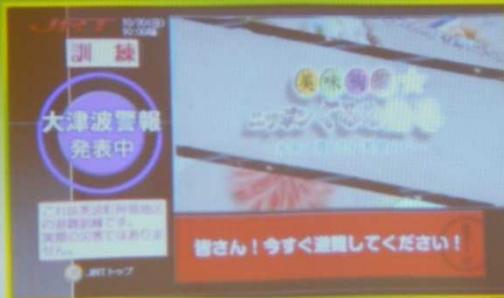
An Experimental Program : Evacuation Drills



Oct. 2013 and Jan. 2014



8

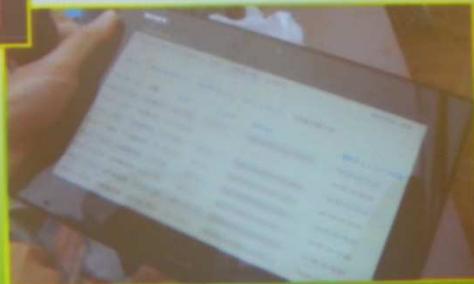


Datacasting

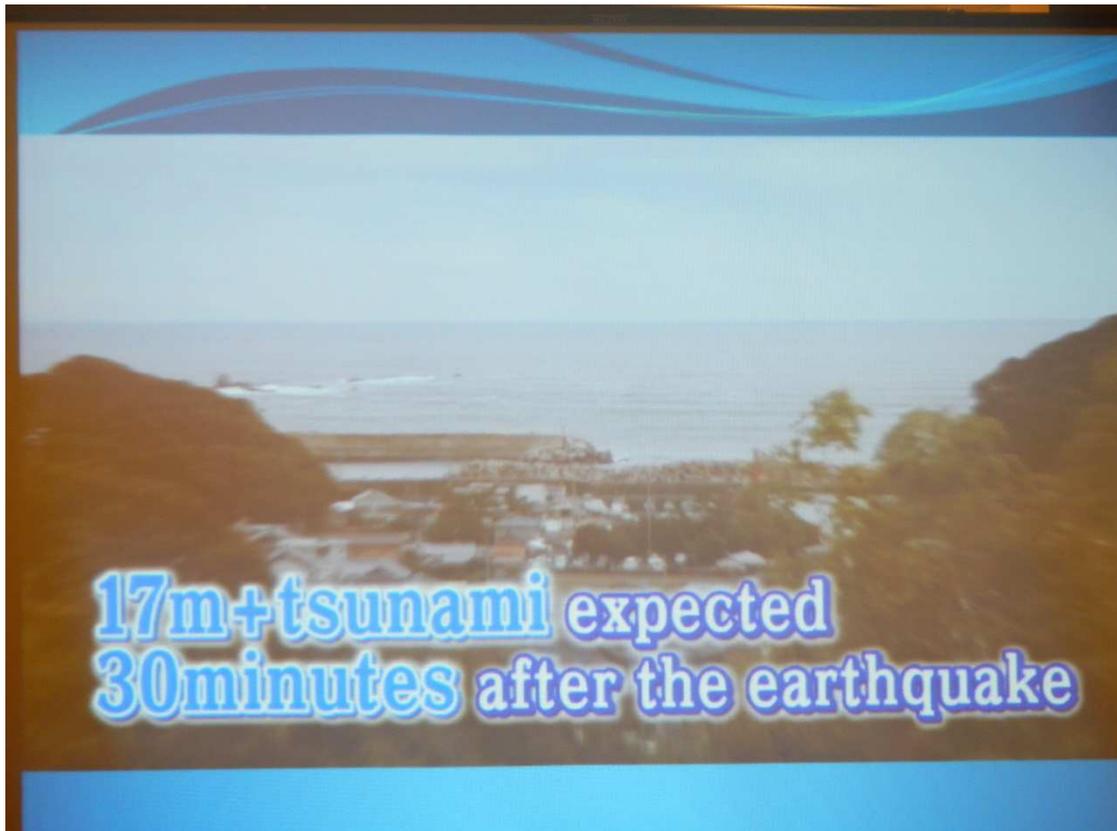
Elderly Support

Disaster Assistance

Internet



9



The Jointown project : Disaster Relief Assistance

- Customized evacuation alerts on TV screens
- Check in with cards or code stickers
- ID-linked personal information; Name, Age, Emergency contact, **Medication**, etc.,
- Information sharing with local government, police, fire department, Self-Defense Forces
- Map safety information gathered from GPS and local governments
- Predict whether a person is at home or not by using TV viewer data
- Evacuation centers share information on residents' safety and demand for relief goods



Top priority issues faced by Japanese society

- Disaster mitigation, disaster prevention



- Super aging society
(25.1% of population is over 65 years old.)

A Model Zone : Minami, a small town in Tokushima Prefecture

Population: 254
Households: 132
More than half : 65 and over

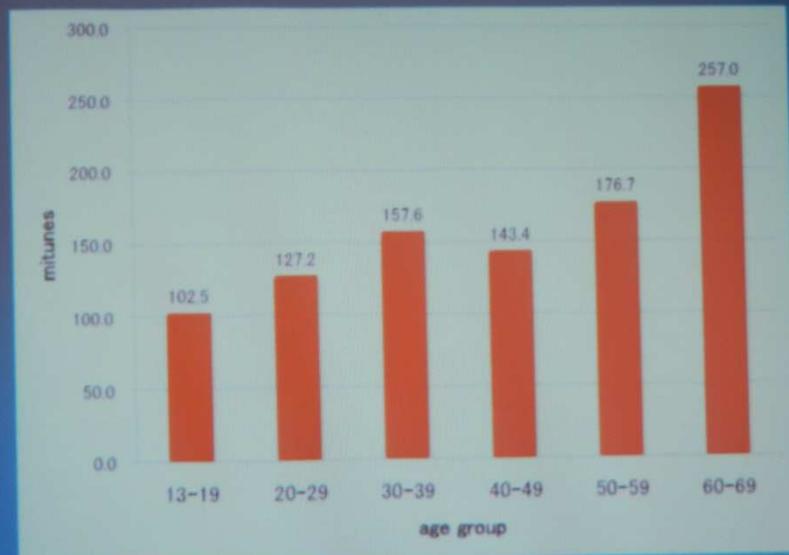
17m+ tsunami expected
30 minutes after the earth quake

PC penetration rate by age group in Japan (2014/3)



The consumer behavior survey by the Cabinet Office

Realtime TV-watching time (2013/12, weekdays)



The survey by Ministry of Internal Affairs and Communications

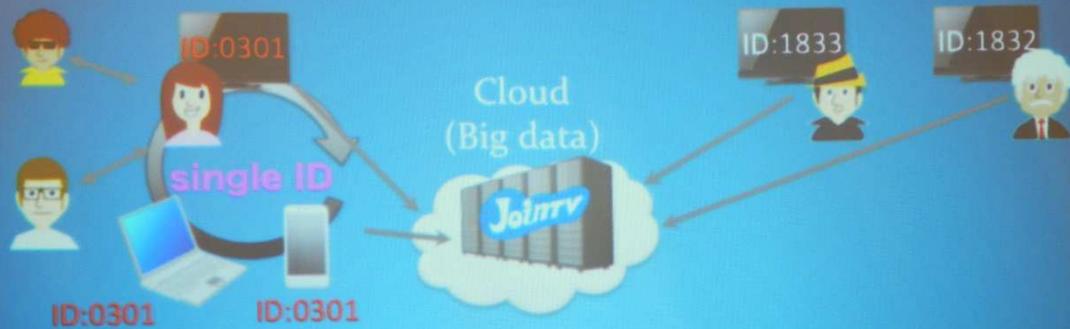
Join TV – Original Service

- Launched in June 2012 by NTV (One of five key national commercial stations)
- TV-linked social interactive application
- Offers a new viewing experience for Facebook friends to watch and enjoy the same NTV programs through the television screen (or second screen)
- Expects raising real-time watching of TV
- Explores new big data business

17

Join TV - Technology

- Connects multiple devices with a **single ID**
- Registers your personal information
- Stores the data in the cloud



Prospects and Challenges

- ▶ Join TV has become **an open platform** available for all broadcasters since 2013/11.
 - Rival broadcasters are not willing to use **NTV-developed** Join TV.
- ▶ **The My Number system** is scheduled to be launched in January 2016.
 - People are concerned over **the leakage** of personal information.
- ▶ MIT is seeking the way to make Jointown **a universal service**.
 - How can NTV, a developer of Join TV, **be rewarded?**

Jointown@Tokushima will be introduced at W3C TPAC 2015 (Sapporo, Japan, October 2015), as the possible standard of DTV.

Conclusion

A trigger of Smart TV diffusion in Japan might be a public benefit service, such as saving lives and supporting elderly, rather than a money-making business model.

21

PTC Research Workshop: Evolving Business Strategies for Smart TV and Smart Phone: An International Comparison

European Challenges for Smart TV and Smart Phone: Regulation and Adoption

Professor Erik Bohlin
Department of Technology Management and Economics
Chalmers University of Technology
Gothenburg (Sweden)

Sunday, 18 January 2015

Smart TV: TV sets + inbuilt Internet Connectivity

Note: Many terms – smart TV, connected TV, multi-screen TV, non-linear TV

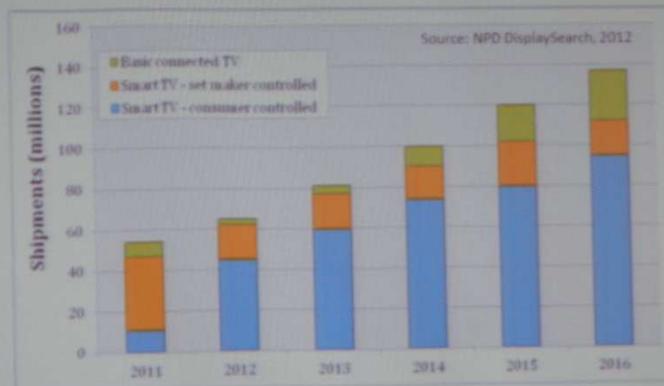


Source: <https://s3.amazonaws.com/ksr/projects/218298/photo-main.jpg?1397785988>

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Global Market Penetration

Table 1: Connected TV set sales projections



- 2012: 104 million Smart TVs (NPD DisplaySearch, 2012)
- 15% yearly increase (European Audiovisual Observatory, 2014)
- 2016: 65% of TV shipments would be smart TV (European Audiovisual Observatory, 2014)

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European Market Penetration

Table 2: Smart TV Installed Base Forecast: Selected Countries

Smart TV Installed Base by Country (Millions of Units)	2012
Japan	21,1
United States	15,8
China	13,8
Germany	7,1
UK	6,8
France	4,2
South Korea	3,5
Russia	3,1
Italy	2,9
Spain	2,7
Total	81,0

Source: Strategy Analytics, 2013

- 2012: 23.7 million installed base in the major 5 European countries (29.15% of the overall installed base)

Note: Comprehensive European estimates on Smart TV are not published yet

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Additional regulatory and policy fields impacted:

- Issues related to EU citizens fundamental rights and consumer protection
- Issues related to EU policy and, in particular, Single Market and cultural policies: technical standards, interoperability, promotion and financing of European works
- Issues relating specifically to anti-trust and competition: monopolies and abuse of dominant position, discriminatory pricing, competitive bottlenecks for content distribution, content discoverability on search
- Several directives (AVMS, universal service, e-commerce and distance selling, citizen rights and electronic communication, radio spectrum, access)

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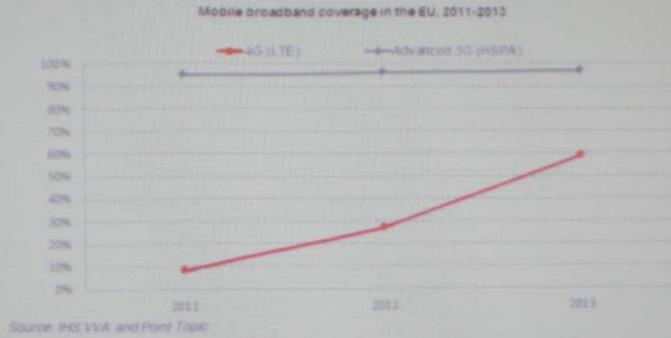
Summary of EU regulatory concerns

Directives	CTV related issues
AVMS (2010/13/EU)	Advertising, protection of minors, cultural diversity, Hybrid TV, accessibility, exclusive rights, media literacy, right of reply
Universal service directive (2002/22/EC)	'Must carry', 'must offer', must-be-found
E commerce and Distance selling Directive (97/7/EC)	Consumer protection, right of cancellation
Citizen's rights and electronic communications (2002/58/EC)	Right of reply, right of correction Defamation, slander, libel Invasion of privacy, Personal data, privacy, Right to be forgotten
Access (2002/19/EC)	Interoperability/standards/ Must carry/must offer/must be found

Source: European Parliament, Report on Connected TV

Smart phone is based on mobile broadband (1/2)

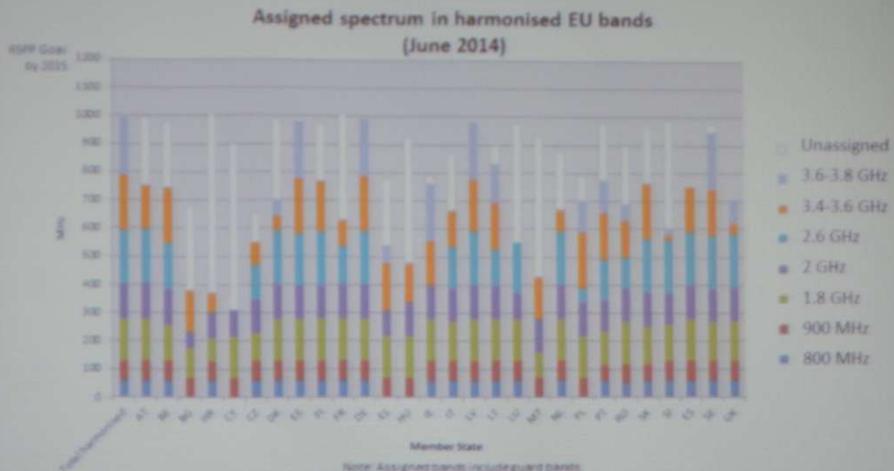
- The EU is encouraging deployment of 4G mobile broadband, which is increasing sharply



- 2013: 59% coverage, compared to 27% in 2012

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Radio spectrum for mobile broadband in EU



Sunday, 18 January 2015

Conclusions

- The development of smart TV is still in the beginning stages in Europe
- Smart TV raises several policy issues and regulatory concerns, the most apparent one dealing with broadband policy
- The interaction between smart TV and smart Phone also raises a number of regulatory issues, most notably spectrum policy
- The European state of spectrum policy is now at a deadlock, with the so-called Connected Continent / Telecommunications Single Market regulation being stuck on its spectrum initiatives

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PTC'15; Coral 3

TOYOTA
INFO-TECHNOLOGY
CENTER CO., LTD.

The Connected Car: Automobile as Infrastructure

Yuji INOUE
Toyota Info-Technology Center
yuji@m.ieice.org



Yuji

January, 2015

Connected Car as new infrastructure by Yuji Inoue - all rights in Toyota ITC

New Values

950 hours



7050 hours



Auto 2.0 in 8,000 hours a year

Vehicle not only for mobility but
a **NEW Infrastructure** for the **SMART & Resilient Society**

January, 2015 Connected Car as new Infrastructure by Yuji Inoue all rights in Toyota ITC 2

Resilience in a Huge Disaster

Vehicles as **Information Hubs**
during Disaster
together with **temporary shelter & electric power source**



Source: http://www.nhk.or.jp/e/eng/2011/03/20110311_01.html

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Motivation 1



After the massive tsunami hit - Case of Sendai City



Zero connectivity on phone and internet
> Handwriting messages on whiteboard
>> Very crowded

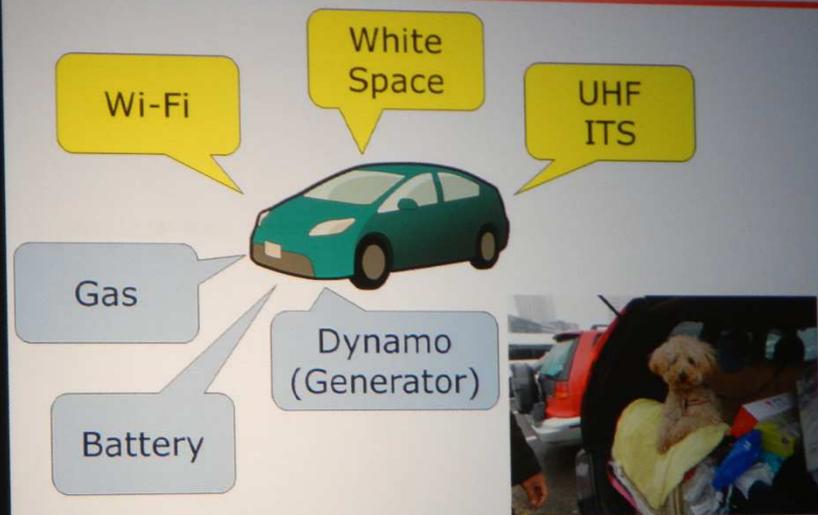


Missing family members
> Over 300 evacuation sites
>> Impossible to locate them

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Capability

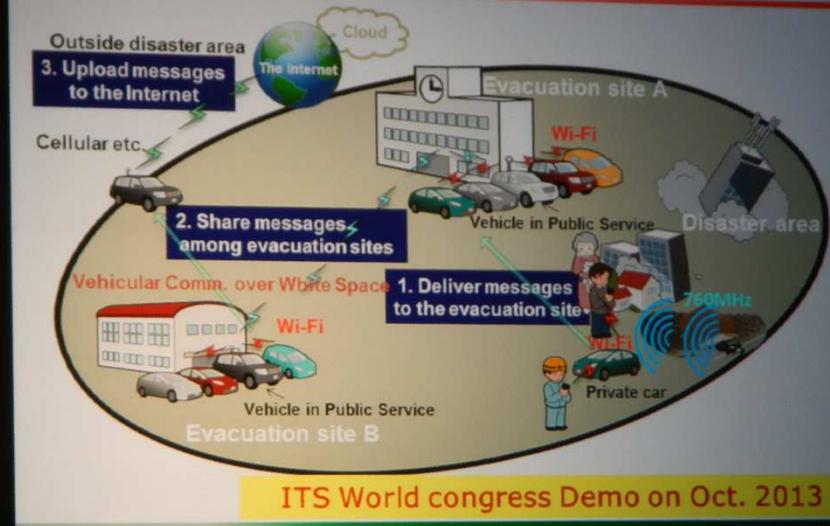


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Resilient Communications



ITS World congress Demo on Oct. 2013

Motivation 2

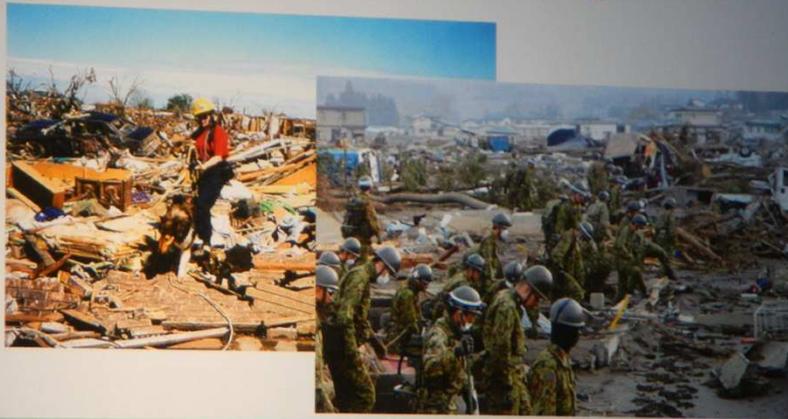
After the massive tsunami or earthquake hit
- difficulty of finding victims



Motivation 2



After the massive tsunami or earthquake hit
- difficulty of finding victims



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ITS V2X system Expansion as Human Finder



Wearable V2H
In 30 days

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ITS V2X system Expansion as Human Finder

TA
TECHNOLOGY
& Co., Ltd.

- Handy probe
- Vehicle
- Helicopter / UAV



**Wearable V2H
In 30 days**

+ Rapid distribution of imminent tsunami alert

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ASTAP approved for Standardization

TOYOTA
TAHO TECHNOLOGY
CENTER CO., LTD.

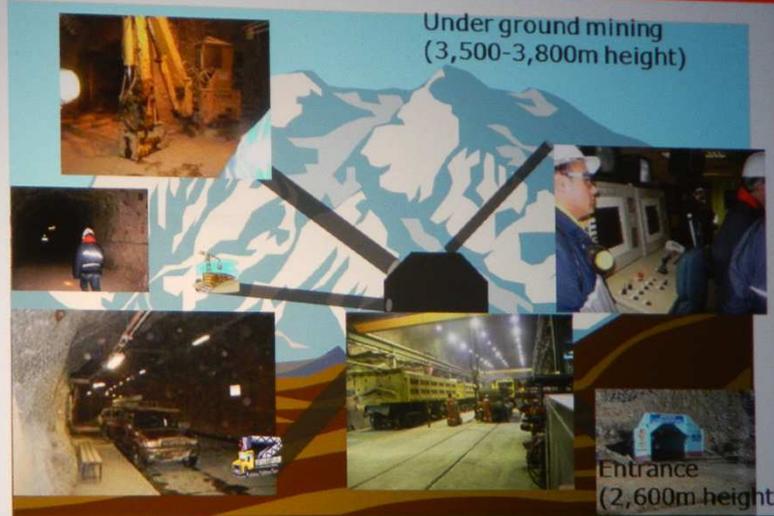
- TTC proposed
**NEW STUDY ITEM ON UTILIZATION OF VEHICLES AS
INFORMATION HUBS DURING DISASTERS**
- develop a **set of utilization standards** of vehicle communications networks as resilient information hub-networks during huge disaster. Vehicle communications will be achieved by harnessing various radio communication **technologies** such as;
 - A) Wi-Fi
 - B) UHF Band Intelligent Transport System
 - C) White Space

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Smart Mining



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Car-Hub for New Mining



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Mining Wear with Intelligence



INTEL GLOBAL 2013 Best Award

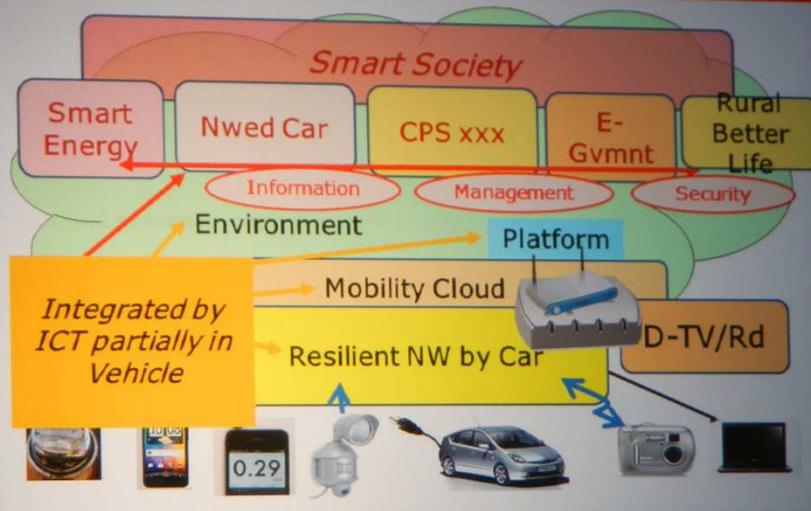
Solu:Novo

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Smart & Resilient Society with Vehicle



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14

Thank you

*Vehicle to be a new infrastructure
for smart & smile society*



Andrew J Haire

**IOT POLICY – DO WE KNOW
WHAT WE ARE CREATING?
(PTC15)**

Agenda

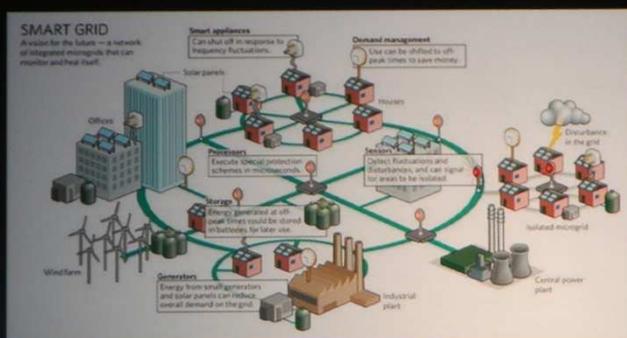
- Let us define Terms...
- What do we know so far
 - How did we get here
- What are Implications to Policy Makers
- What will this mean, and where will it go...



Where is the industry going?

- The notion of Smart...

- Smart...
- Governance
- Healthcare
- Building
- Mobility
- Infrastructure
- Technology
- Citizen
- Energy
- City



Source: Univ of VT, USA

And of course - the Smartphone



Implication: Business Models

- **Apps**
 - Garbage collection based on container sensors
 - Green Parks that advise when to water
 - Lighting that adjusts with the presence of citizens
 - Sensors to measure air quality, vibrations, noise
 - Traffic control; public safety
 - Transportation and Parking
 - Payment systems; space identification; traffic flow tracking
 - Augmented reality to determine location; City guides
 - Bike sharing
 - Buildings and residential dwellings
 - Automated climate control based on living habits
 - Open Data Initiatives

Let's Define...

M2M

- Devices and sensors
- They watch and inform
- They collect and send
- Point to point



IoT or IoE

- Usually the 'thing' is asked
- Interaction
- Things to Person
- Things to Things



Cloud

- Houses Information
- AND offers processing capabilities...
- Not sensors



Big Data

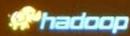
- More, Messy, Correlations
- Analytics
- Uses Cloud



What needs our Attention?

Determined Drivers

- Costs of computing, storage
- Ease with which we can share and communicate



Where is the Value

- Not in number of connections, but
- People, Process, Data, and these Things



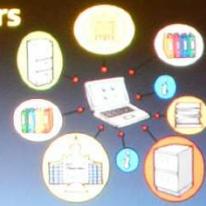
Implication: Policy

- Access to public information
- Individual privacy and security
- Scarce Resource (wireless) Policy
- Regulator's collaborative role
- New Competition Paradigm

Implication: Policy

- Access to public information

- Data Openness to achieve transparency
 - Public Trust
 - Who sees this information?
- Societal Benefits
- Value belongs (usually) to others



Implication: Policy

- Individual privacy and security

- Understand that these two issues are different



Implication: Policy

- Individual privacy and security
 - Understand that these two issues are different
 - Growing Ability to Track Individuals
 - Rights to be Forgotten
 - Responsibility to Protect from unwanted intrusion
 - Traditional tenants of Data Protection:
 - Individual Notice; Opt-out; Anonomization
- Don't work!**



Implication:

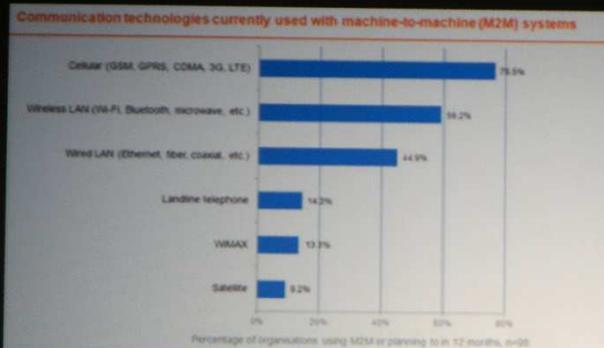


- Scarce Resource (wireless) Policy
 - Growing need to use scarce radio spectrum



Implication: Policy

- Scarce Resource (wireless) Policy
 - Growing need to use scarce radio spectrum
 - M2M (and some IoT) devices platform specific
 - Varying types of transmission, from
 - Brief bursts → continual streaming
 - Highly infrequent → continuous
 - Lends itself to spectral inefficiency



- Growing need to use scarce radio spectrum
- M2M (and some IoT) devices platform specific



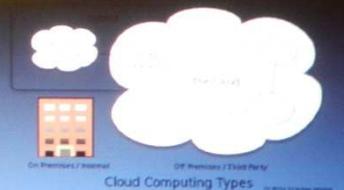
Implication: Policy

- **Scarce Resource (wireless) Policy**
 - **Growing need to use scarce radio spectrum**
 - **M2M (and some IoT) devices platform specific**
 - **Varying types of transmission, from**
 - **Numbering Policy**
 - *Some platforms use telephone numbers*
 - *Some use IP addresses*
 - *Some use unique identifiers*
 - *Who manages & should they be regulated, if scarce?*



Implication: Policy

- **Regulator's collaborative role**
 - **The old methods are obsolete; regulator & policy must collaborate w/ others in government**
 - **Crosses sectoral boundaries**
 - **Enter the era of compromise**



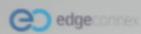
Where will this go?

- Multi sector; multi jurisdiction policy
- Standards will become more crucial.
- Aim toward critical mass, multi-stakeholder activities
- Open Data Initiatives



PTC35 – 30 January 2015

13



Network and Wireless Trends – Edge Data Centers

Data Moving to the Edge

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What's Driving Our Business

Market Overview and Demand Discussion | Data Moving to the Edge

Fiber | Ethernet

Video | Apps

Cloud

Mobility

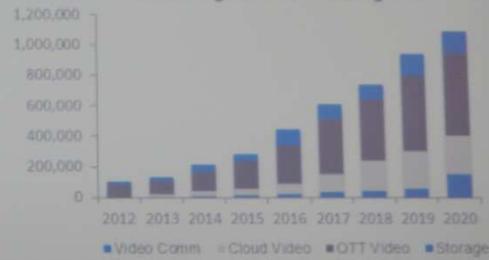


Data Consumption Exploding Across Fixed and Wireless Networks

Fixed and Wireless Data Traffic Growth (PB per Month)



Streaming Video Increasing 10x



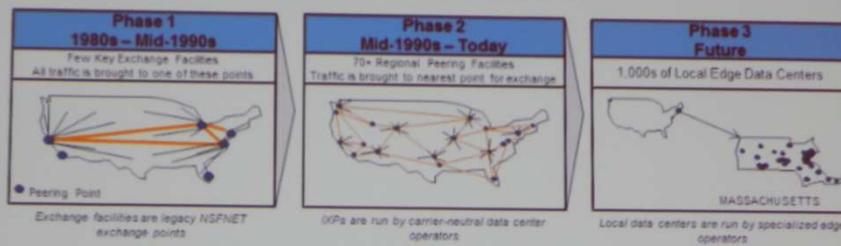
* Source: Cisco VNI 2014 and Alcatel Lucent 2012

Traffic Growth Drives the Internet Exchange Infrastructure

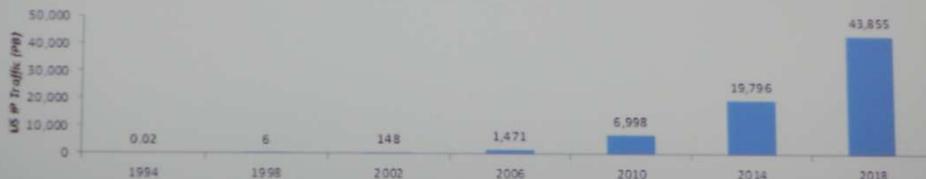
Market Overview and Demand Discussion | Data Moving to the Edge

Shifting from Centralized to Regional to Local Edge Data Centers

Phases in the Evolution of the Internet



IP Traffic in the US (Petabytes per Month)

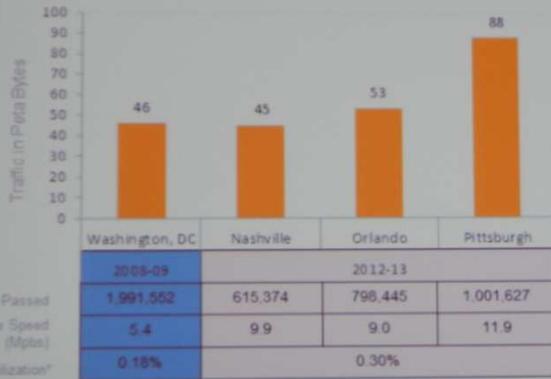


Targeting Smaller Tier 1 and Tier 2 Markets

Market Overview and Demand Discussion | Edge Data Center

Several such as Nashville, Orlando and Pittsburgh Lack the Public Peering Infrastructure

Monthly Traffic Generated by Market (in Peta Bytes)



Observations

Washington DC had an average speed of 5.4 Mbps in 2008-09 compared to an average speed of 12.5 Mbps in 2012-13

Average US speed has grown to over 6.4 Mbps in 2012-13 from 3.4 Mbps in 2008-09, indicating that several smaller markets that had low single digit speeds 4-5 years ago are now rapidly catching up to larger markets

This growth will need the establishment of increased peering infrastructure in several tier II markets

* BW Utilization is a per traffic utilization measure and is equal to [Actual Data Usage / Speed (Mbps) X Total Time (s)]

Sources: Akamai State of Internet Report Q1 2009, US Census Bureau, National Broadband Plan, Cisco VNI Study 2008 and 2012, and CMA Research

Network and Wireless Trends – Small Cells

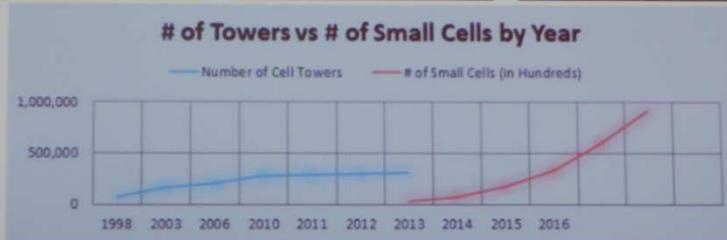
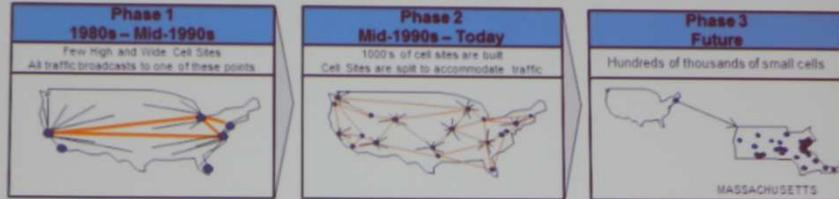
Data Moving to the Edge

Data Growth Drives the need to maximize spectrum

Market Overview and Demand Discussion | Data Moving to the Edge

Shifting from High and Wide to Macro to Local Small Cells

Phases in the Evolution of the Wireless Facilities

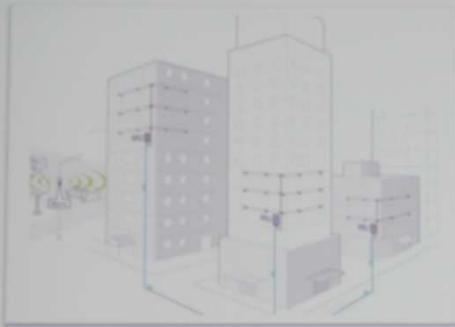


Source of "# of Towers" data from: CTIA, Wireless Industry Summary Report, Year End Results, 2014

Source of "# of Small Cells" data from: Informa Telecoms & Media

Small Cell Network Deployment Not Always a Small Effort

Wireless | Small Cell and Services



BUILDING REQUIREMENTS

- Indoor / Outdoor Access
- Aesthetics
- Vertical and horizontal rights
- Inside plant design and implementation

NETWORK | BACKHAUL RESOURCES

- Fiber
- Wireless (LOS / NLOS)
- HFC
- Coax | Copper

STREET VIEW



What is holding up Small Cell Network Deployment?

Challenges

- Cultural Predisposition
- Necessary shift in real estate negotiations
- Lack of experience
- Cost of small cell equipment
- Cost of backhaul

Leveraging Differentiation to Drive Business Model

Approach to Market Enables Monthly Recurring Revenue Opportunity

Locations



Rapid access to 10,000s of sites

Integrated streamlined process to address zoning and approvals

Infrastructure



Rapid time-to-on-air via standardized designs

Flexible installation options (buildings, poles, street furniture)

Connectivity



NLOS/LOS capability where fiber not available

Rapid access to fiber backhaul through MSO and fiber partnerships

Maintenance



24 x 7 NOC

Repair / replace capability

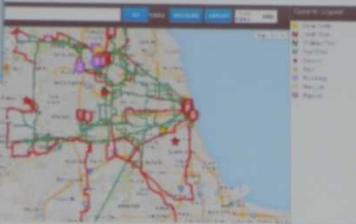
Edge Small Cells enable operators to reach scale on timeline and cost required to meet traffic demands

Proprietary Suite of Design and Management Systems

Integrated Edge Infrastructure Software Solutions



- Site Selection
- Fiber Sourcing & Design
- Network Design



- Program Management
- Work Flow
- Custom Reporting and Dashboards

Date	Project	Client	Phase	Lead	Status	Start	End	Contract Value
1/15/2014	Seattle	Comcast	Design	John Smith	Active	1/15/2014	12/31/14	\$1.2M
2/1/2014	Portland	Comcast	Design	John Smith	Active	2/1/2014	11/30/14	\$0.8M
3/1/2014	San Francisco	Comcast	Design	John Smith	Active	3/1/2014	10/31/14	\$1.5M
4/1/2014	Los Angeles	Comcast	Design	John Smith	Active	4/1/2014	9/30/14	\$1.0M
5/1/2014	Phoenix	Comcast	Design	John Smith	Active	5/1/2014	8/31/14	\$0.9M

All tools are web-based and fully integrated

Wireless Network Data Growth Accelerating

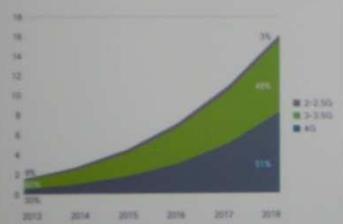
Network and Handset Improvements Driving Wireless Video Adoption

The Mobile Network in 2013: Signs of an increasingly wireless world

- Global mobile data traffic grew 81 percent in 2013 reaching 1.5 exabytes per month
- Last year's mobile data traffic was nearly eighteen times the size of the entire global internet in 2000.
- **Mobile video traffic exceeded 50 percent of all traffic for the first time in 2012.** 53% by the end of 2013
- Mobile network connection speeds more than doubled in 2013
- In 2013, a fourth-generation (4G) connection generated 14.5x more than a non-4G connection
- 4G represents only 2.9% of mobile connections and accounts for 30% of mobile data traffic
- Average smartphone usage grew 50 percent in 2013. (529 MB per month, up from 353MB in 2012)

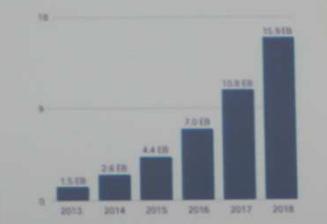
The Mobile Network in 2018: Access & Core Network improvements drive video adoption

4G - 15%Connections | 51% of Traffic



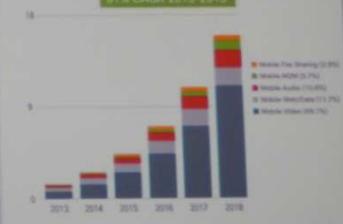
4G connection generates 15 times more traffic than a non-4G connection

Global Mobile Data Traffic Exploding



15.9 Exabytes per Month of Mobile Data Traffic by 2018

Shift to Higher Bit Rate Mobile Video



Mobile Video Will Generate Over 69 Percent of Mobile Data Traffic by 2018