



Not Your Father's WiFi

The Evolution Towards Next Generation Wi-Fi Services

Jeremy Uy

IBSG / Cisco Consulting Services

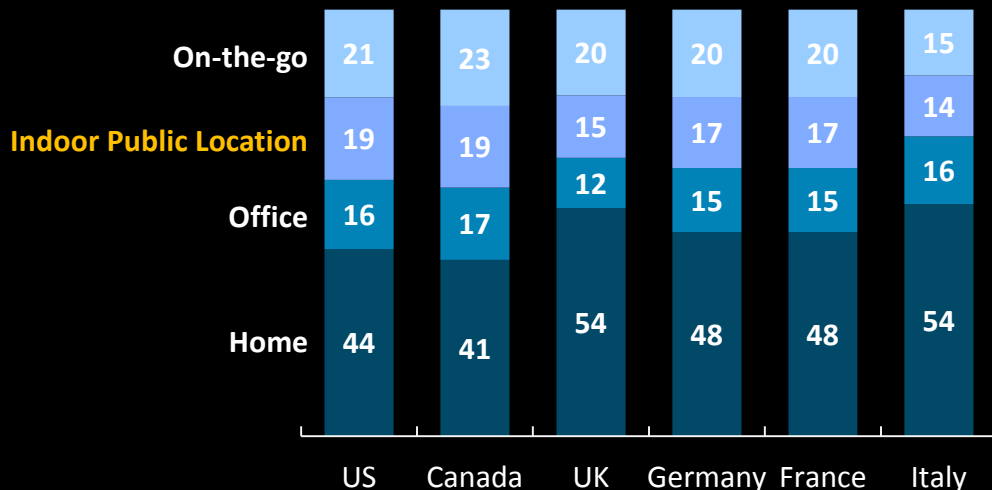
3 April 2013

Agenda

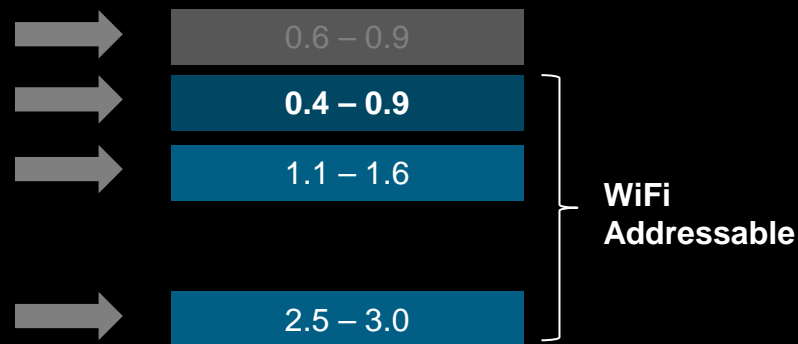
- **What are the consumer and business drivers for SP WiFi?**
- **What are the typical SP WiFi business models and go-to-market strategies?**
- **What are the innovative uses and economics of WiFi in industry verticals?**
- **How are service providers addressing the WiFi opportunity?**

Opportunity to capture ~20% of outdoor mobile data usage with WiFi

Percentage of Time Spent Mobile Browsing (%)



Average Daily Session Length (hours)



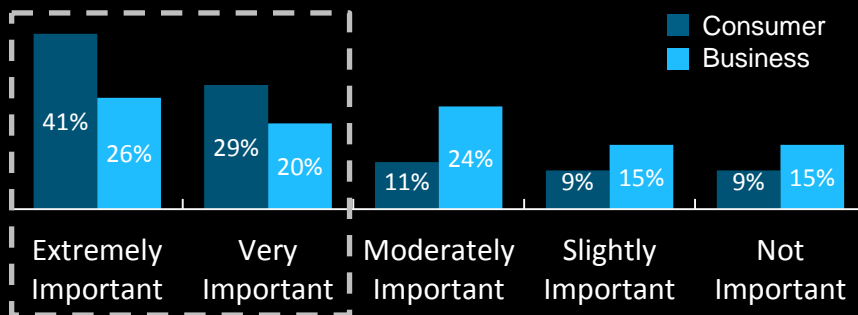
On its own, fixed location WiFi browsing is a significant opportunity, with 15-20% of mobile browsing occurring in these locations, lasting for half an hour to an hour daily.

An even greater opportunity if integrated with home or business WiFi services for more seamless usage.

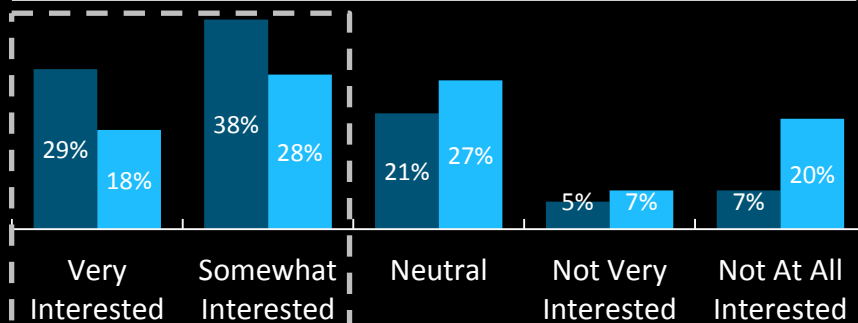
Source: Cisco IBSG Survey, 2012

Strong consumer WiFi interest and churn impact

Importance of Free WiFi in Broadband Provider Choice

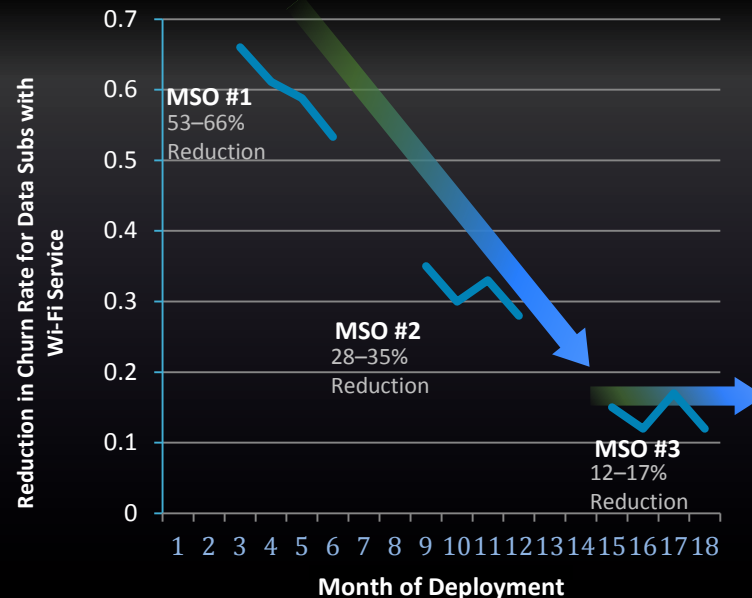


Interest in Bundled WiFi + Mobile Access



Source: Cisco IBSG Survey, 2012, RCBG

Impact on Broadband Data Churn Following Introduction of Wi-Fi Offer



WiFi preferred by mobile data users and will defer cellular usage

WiFi preferred by mobile data users over Cellular connections...

Type of Network Preferred by Mobile Data Users

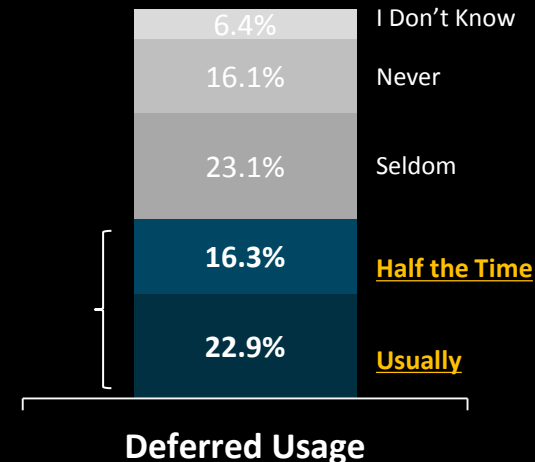
| | WiFi | Neutral | Mobile |
|----------------------|------|---------|--------|
| Lowest Cost | 57% | 21% | 22% |
| Speed of Network | 59% | 20% | 21% |
| Best Reliability | 49% | 19% | 32% |
| Best App Performance | 50% | 23% | 27% |
| Best Coverage | 36% | 17% | 48% |
| Most Secure | 36% | 27% | 36% |
| Easier to Use | 42% | 26% | 32% |

Question: Which type of wireless network do you think offers the most desirable performance in each of the following areas?

Source: Cisco IBSG (March 2012)

...and are willing to defer data usage until they can get a WiFi connection

Frequency of waiting for Wi-Fi access prior to browsing (% of mobile data users) (Western Europe)



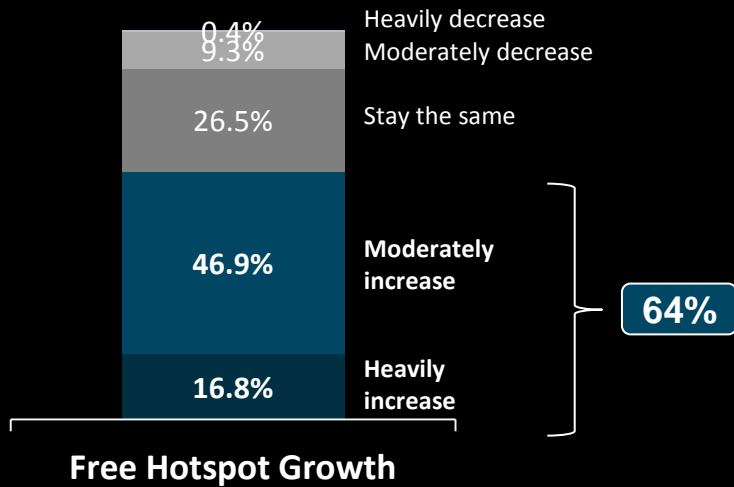
Source: Cisco IBSG Connected Life Market Watch, 2012

Base: EU BB Consumers using smartphone

Trend towards most WiFi hotspots becoming 'free' to consumers – but opportunities still exist for alternative business models

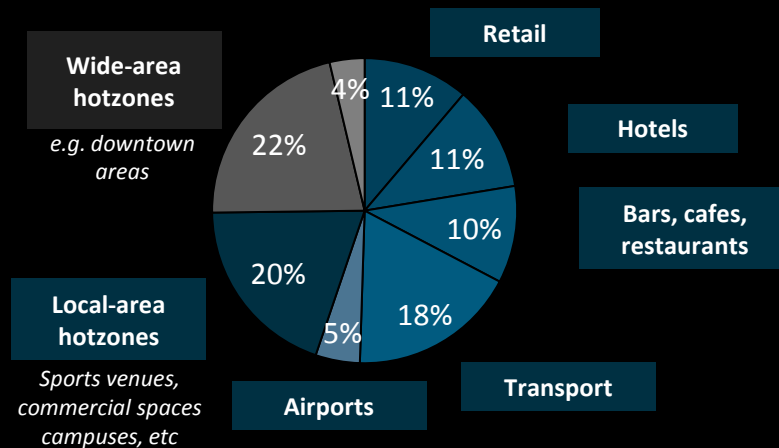
Free WiFi hotspots expected to increase – Need for alternative revenue models

Proportion of Free Hotspots SPs expected to deploy over the next 12 months



Monetization opportunity: 74% of WiFi growth in vertical-specific locations

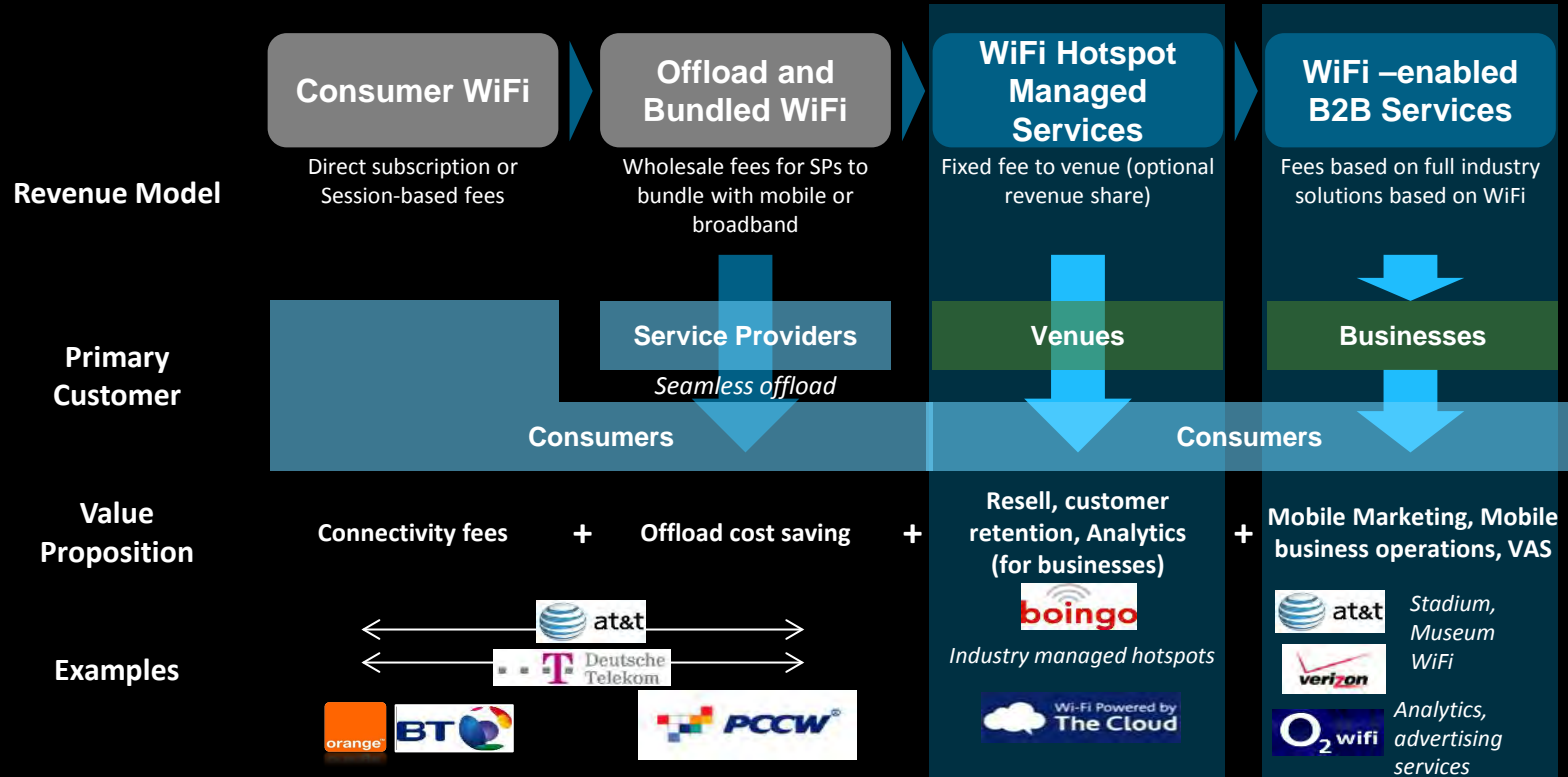
Expected Locations of WiFi Traffic Growth
WBA Global Survey



Source: Wireless Broadband Alliance 2011, IBSG Analysis

Shift from WiFi from user connectivity to vertical-services enabler

WiFi Business Models Overview



Several possibilities for WiFi monetization relevant to cable or wireline providers

Potential WiFi Opportunities

| | | |
|------|--------------------------------|--|
| B | Mobile Offload | 1. Ready market of WiFi-only devices <ul style="list-style-type: none"> Over 30 million WiFi-enabled devices in Indonesia Up to half are laptops and tablets which may not have 3G/4G capability |
| B2C | Direct Fee / Subscription | |
| B2C | Indirect revenue impact | 2. Free and Bundled WiFi as a differentiator <ul style="list-style-type: none"> IBSG Survey: 65% said that free bundled public WiFi is very important in choosing broadband providers, 25% would be willing to pay fees for unlimited WiFi 20-30% of mobile data usage is nomadic (libraries, campus, cafés) |
| | Premium / Bundled WiFi | |
| B2B | Venue owners and WiFi Services | 3. B2B WiFi Managed Services to create new markets <ul style="list-style-type: none"> Creates new 'value' through services and analytics – avoids passing the full cost to the end-user Retail, transport station, entertainment venues want WiFi for both communicating with customers and internal operations |
| | Third party wholesale | |
| B2SP | SP wholesale | 4. WiFi First Mover allows wholesale to 3rd parties <ul style="list-style-type: none"> Project experience shows that some venues will only allow one WiFi provider (typically, transport) Capturing priority locations will allow opportunity to sell connectivity to other service providers, helping defray part of expenses |
| | Intelligent content delivery | |

Global Examples



- Targets **WiFi-only devices** such as laptops (accounts for over 50% of connections in Europe).
- Bundled with broadband plans as a key **differentiator**. **WiFi VAS**.



- Allows subscribers of their home IPTV service to view **video on-the-go and music streaming**



- Value-added services** in partnership with venues (e.g. Stadium: stats,, videos, purchases, etc; Museums: guided tours, additional content)



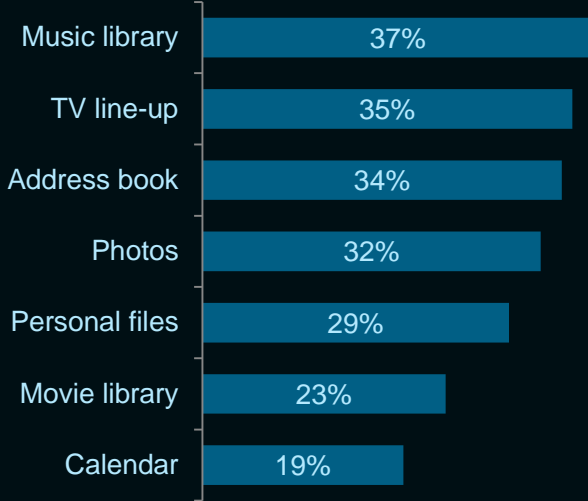
- Captured key locations such as subways, retail stores, airports, etc.
- Providing wholesale service to other telecom providers

Opportunity to increase customer loyalty with consumer cloud services

Consumers want access to own content anywhere and across devices

Preferred content to be accessible across devices

(IBSG survey for an emerging country)



Source: Cisco IBSG Connected Life Survey (2010)
(Respondents: broadband users with phones)

Consumer Cloud Opportunity



- **TV:** Partnership with pay TV players to synchronize subscriber line-up and provide content
- **Music:** For uploaded and purchased music library
- **Files:** Synchronized photo and document repository between devices
- **Memberships:** Tailored promotions and location-based services with retail partners

Benefits to Provider

- Reduced churn due to personalized stored content
- Increased data usage since content is personally relevant
- Advantage over OTT from faster local network and QoS



Mobile Share,
Digital Vault



Store & Share



Backup, Contacts, content
and photo storage



BT Digital Vault

Example: WiFi-specific Consumer Services



Orange is one of the largest providers of public Wi-Fi services by operating over 30000 hotspots in France alone. Apart from basic Internet access, Orange offers a set of **specific services on Wi-Fi** such as **HD video**, a **Web 2.0 portal** with social networking apps/services.

Non Orange customers can obtain access through **acquiring vouchers**. For **existing customers** Wi-Fi is part of their tariffing plans either as a **flat rate component** or **usage based**.

Orange is continuing to run and expand the Wi-Fi network and associated services as complement to their 3G/4G networks.

Examples of WiFi-enabled vertical services



Sports / Entertainment

- Media and fan WiFi networks
- Mobile PoS Mobile merchandising
- Premium content and applications



Hospitality, Real Estate

- Tenant , store operations and guest access
- Location-based info and promos
- Digital signage
- Surveillance



Trains, Subways

- Platform signage
- Digital merchandising
- Small-format in-vehicle displays
- Station operations



Education

- Managed private campus networks
- Nationwide WiFi educational network with cloud-based content



Retail, F&B

- Mobile marketing
- Shopper services
- Mobile payments / ordering systems
- Store operations and apps



Manufacturers

- WiFi-based content delivery / cloud services
- Virtual device networks (e.g. gaming)
- Enterprise campus mobility

Example: Up to \$6 million 5-year SP revenues per stadium from vertical-specific services

New Stadium Services Around Media, Transactions and Information on Top of Connectivity



- Live Interactive Video
- Video / Audio Streams
- VoD Library

Direct Fees



- Mobile Ticketing
- F&B / Merchandise ordering
- Parking Booking

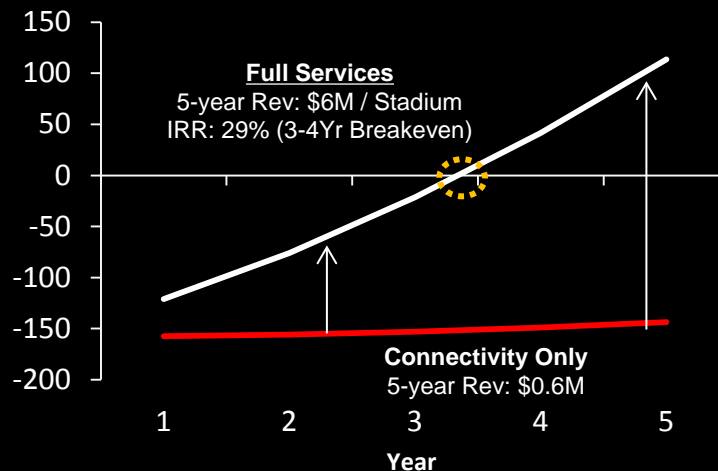
Transaction Fees



- Season / Game Information
- Location-based Info / Marketing
- Stadium Social Networks

Targeted Mobile Advertising Revenues

Allows for an Economically Viable Standalone Business Case for WiFi in Stadiums



With WiFi Services:
\$6 million in 5-year revenues per stadium;
Breakeven in 3-4 years

Extend services beyond the game: Providers from sports and other verticals already have many of the capabilities needed



Pre-Game

During Game

Post-Game

Example Applications

Parking m-payment

- Pre-book slots
- Pay for parking (secure payment)
- Extend parking remotely

Mobile ticketing

- Mobile booking and entry using mobile

Stadium navigation

- Locate your seat using map

Match coverage

- Instant replays, commentary, stats

Sports betting

- Instant replays, commentary

Online ordering

- Place orders for food, merchandise

Targeted marketing

- Preferential ads, promotions

Social networking

- Post game polls, connect with friends etc

Locate other places

- Nearby eating places, taxis, buses etc

Example Providers



Mobile payments provider in the parking industry



Mobile ticketing for events



App to locate your seat in a stadium



Systems for instant replays, stats etc



Augmented reality



Apps to compare odds and place bets



Apps to order & pay for Food & Services



Interactive and Engagement Social Network – post game polls etc



Location-based interactive media ads



Google app that lists nearby places

Retailers leveraging WiFi to improve customer experience and internal operations

Enabling Shoppers

*US and UK, 2011:
More than 40% shoppers
want to access digital
content in-store with
personal devices*



Rich Video Content

Designers explain the latest trends in HD mobile video by scanning QR codes in the store



Pilot in Progress

Location-Based Services

Tablet-equipped carts sync with consumers' smartphones to offer position-relevant, real-time info



Enabling Retail Staff

*US and UK, 2011:
Online information
preferred to store
associates by a 5-to-1
ratio*



From Web to Store

Deploying 42,000 iPhones to create a seamless transition between shoppers, staff



Google With a Smile

Integrating Apple iPads to help customers "find more in the store"



Improving Operations

*US:
On-floor WiFi-based
mobility creates
productivity gains of up to
20% over 5 years*

Sonea

€10M Annual Benefit

Enterprise applications via mobile devices; 6K employees, 1M operations per day



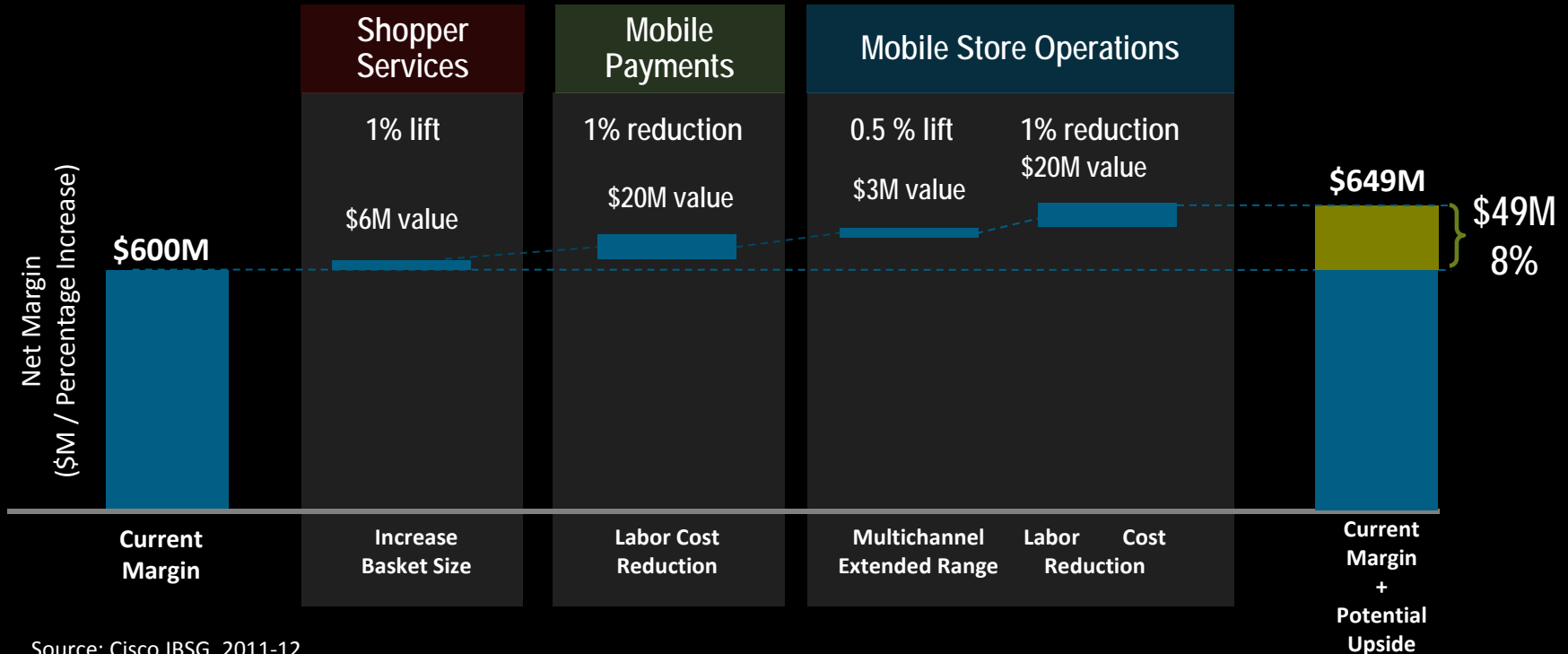
Service at Point of Decision

Mobile Point of Sale in dressing areas, aisles



Up to 8% Retail profitability improvement

Typical Retailer with \$20B of Revenue per Year



Source: Cisco IBSG, 2011-12

Retail and F&B Wi-Fi Use Case

Managed Service to Retail, Pubs, Restaurants



Agreement with Tesco to install Wi-Fi network in **all the shops**. Clients with the **Tesco Club card** will have **unlimited Wi-Fi access** in the shops



O2 will provide free Wi-Fi in Mitchells & Butlers' **1,600 UK restaurants & pubs**. Wi-Fi offer will be free for customers. Pubs & restaurants-goers will soon be able to receive promotional offers, check the football scores...

Agreement to create a Wi-Fi zone, **free to visitors and residents in Westminster, Kensington and Chelsea**

O2 with Managed Services for House of Fraser

House of Fraser champions mobile shopping experience to engage their customers with O2
23 Nov 2011 09:00

House of Fraser teams up with O2 to offer Christmas shoppers free wi-fi



- Cross-marketed by O2 as part of its Priority Moments campaign, O2 customers receive a **£15 House of Fraser** gift voucher when they **spend £40** or more in the store
- O2 Media's **real time location services** will be used to direct consumers into House of Fraser stores by offering a range of promotional activities
- O2 Media will also be sending out **rich media messages**, such as pictures and videos of in-store fashion shows and products

"This is the first time that O2 has combined and integrated different services to deliver a mobile campaign that is part of House of Fraser's wider marketing mix for their Christmas activity.

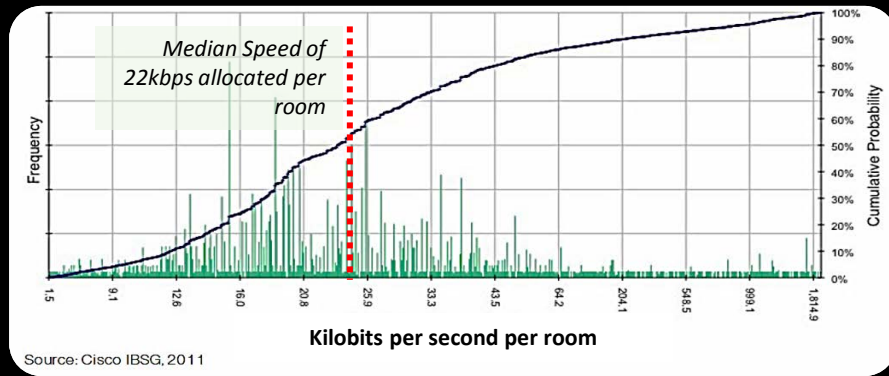
A portfolio of O2 Media services, including Priority Moments and real time location reach have been combined with O2 Wi-Fi to deliver personalized targeting for O2 customers around the House of Fraser brand, which is focused on delivering an innovative consumer experience"

<http://mediacentre.o2.co.uk/Press-Releases/House-of-Fraser-champions-mobile-shopping-experience-to-engage-their-customers-with-O2-34b.aspx>

US Hotels: Many hotels unprepared for internet and free WiFi demand

Hotels are currently not equipped to deliver high bandwidth internet services

IBSG US Hotels Study (2011)



Hotels limited in ability to pass on upgrade costs to guests due to demand for free WiFi

Top 5 Amenities Affecting Hotel Choice
(JD Power, North America)

| Luxury | Upscale | Upper Midscale | Lower Midscale | Economy / Budget | Extended Stay |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| WiFi | WiFi | WiFi | Breakfast | WiFi | WiFi |
| Breakfast | Bedding / Pillow Choice | Breakfast | WiFi | Breakfast | Breakfast |
| Bedding / Pillow Choice | Breakfast | Bedding / Pillow Choice | Bedding / Pillow Choice | Bedding / Pillow Choice | Bedding / Pillow Choice |
| Pillowtop Mattress | Pillowtop Mattress | Pillowtop Mattress | Pillowtop Mattress | Free Parking | Pillowtop Mattress |
| Free Parking | Flat Panel HDTV | Free Parking | Free Parking | Pillowtop Mattress | Free Parking |

- Hotel internet infrastructure built based on **decade old usage patterns** (email, browsing)
- 80% of hotels have <6mbps line shared across all rooms. Even at just 10% concurrent usage, **insufficient for streaming media**.
- Old oversubscription guidelines becoming less applicable to increasing usage of video (which now accounts for over 50% of traffic).

- **WiFi tops most other amenities** (such as breakfast, bedding, parking and HDTV), with **87% using WiFi** (of the 55% of guests using hotel internet)
- However, hotels increasingly under pressure to **offer free WiFi** – JD Power survey showed that guests **charged WiFi** rate the hotel **10% lower in satisfaction**

Hotels: Wi-Fi helps upgrade and improve customer value propositions



Public WiFi Bundling

- **Bundled WiFi package** for access to **public WiFi** (trains, cafes, public spaces)
- Ideal for travelers without local data subscriptions



In-room Devices and Streaming

- All rooms equipped with portable media players or tablets
- Replaces printed hotel **directories and local information guides**
- Allows supports **ordering of room service**
- Enables room control and **media streaming**
- *Example: Swire Hotels, Mondrian*



Mobile Service Agents

- **Guest Service Agents** equipped with tablets to facilitate check-in and out
- Leverage WiFi on at the **hotel lobby** and in **arrival buses**
- *Example: Marina Bay Sands Hotel*



Staff Communications

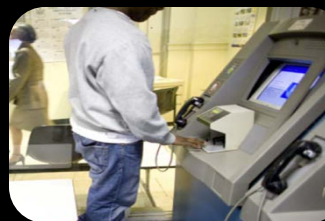
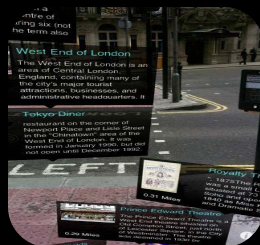
- Enable **hotel mobile enterprise apps** (e.g. work orders, checkout notifications, etc) and VoWLAN for managers and staff
- Mobility enabled **concierge services**
- *Example: Hyatt, Hilton*

- **Improve likelihood to pay for WiFi**
- **Incremental fees**

- **Highly targeted local advertising to guests**
- **Re-sell video on-demand content to streaming devices**

- **Hotel WiFi Managed Services for internal use**
- **Improve WiFi value proposition and reduce costs to guests**

WiFi in Transport to benefit passengers, local businesses and enable new station-based services



Passenger Connectivity

- Free connectivity for transit customers
- Revenues from WiFi site rental to SPs for offload

Hyper-local, Hyper-dynamic Advertising

- Targeted advertising (with local businesses and station tenants) delivered to both mobiles, digital signage

Smart work Centers

- Wireless connectivity for business commuters
- Standing work spaces or dedicated work centers

Information and Services

- Maps and directions for commuters
- Dynamic schedule information and announcements

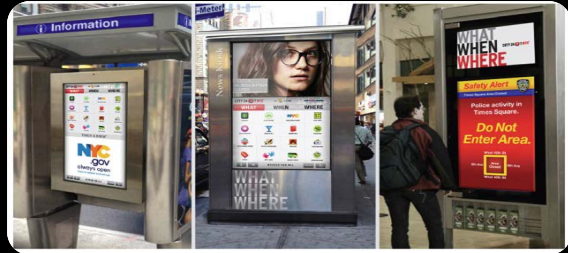
Station Operations

- Station staff communications
- Retail tenant, concessionaire, vending machine connectivity
- Sensors and security

Source: IBSG Public Sector

Outdoor example: Opportunity for Wi-Fi to be integrated into public digital signage

Example: NY City24x7 Smart Screens



Synergies with WiFi and SP Capabilities

Location and Hardware

- Share power, space and backhaul
- Bus stops, phone booths, locality maps ideal due to regular intervals, easy identification, proximity to human traffic and single managing authority

Advertising

- Advertise WiFi hotspot presence and nearby hotspot locations
- Hyperlocal advertising revenues even from individuals just passing by

Public Service

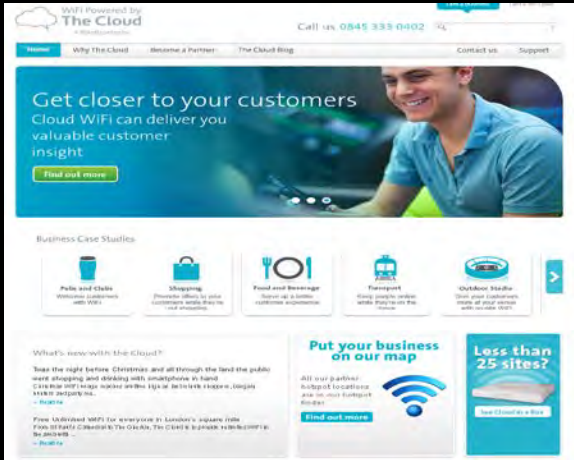
- Deliver public service announcements and local information for municipal government (for fee or in exchange for access to location)

Integration to Mobile

- Opportunity to encourage user to switch to hotspot to continue transactions or more complex interactions

Together with a digital signage partner, SP can leverage its local information content, advertising capabilities and hotspot network

Managed WiFi providers already tailoring WiFi to different venues and usage scenarios



- Comprehensive list of management services
- Segment specific focus: Pubs and Clubs, Shopping, Food & Beverage, Transport, Outdoor stadia, Healthcare, Public Sector
- Various approaches to customers:
 - Time unlimited free access when in the store or area
 - Time unlimited free access in other hotspots areas upon purchasing a product
 - Time restricted free access, afterwards pay-as-you-go



Free Wi-Fi to visitors

Free Wi-Fi to visitors, buyers get free Wi-Fi access at Pizza-Express, Caffé Nero, Eat & JD Wetherspoons

Moved from paid to free model. Visitors stay longer

Branded landing, 15 mins free Wi-Fi, pay as you go afterwards

Branded landing, Wi-Fi for visitors
Wi-Fi for +500 journalist and business people

Wi-Fi to city employees
95% coverage including outdoor



SPs are also taking a vertical-specific approach to WiFi



Stadium WiFi:

- WiFi connectivity in Seibu Stadium
- Web portal-based real-time and historical game and player statistics



Train WiFi:

- High-speed rail and subways station waiting areas and in trains.



Nintendo, McD WiFi partnerships:

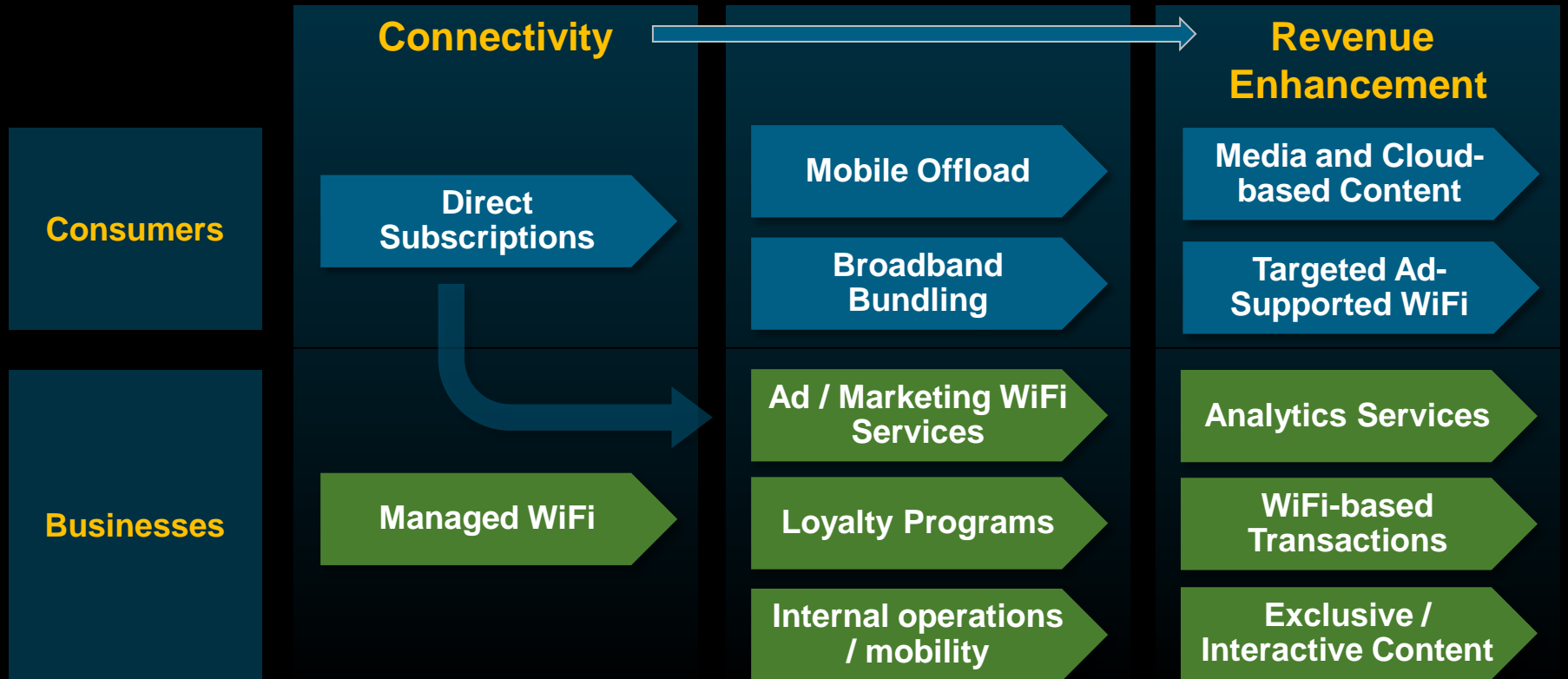
- Nintendo DS users can download exclusive content in NTT-BP hotspots
- McDonald's partnership also delivers additional McD content (food menus, promos, and McD exclusive games)



Retail WiFi solutions:

- Platform to deliver area-specific news, weather, supermarket info, hotel guides and retail shops
- Advertising, couponing, downloadable content

The future of WiFi is in the services that will run on top of it





CISCO