Working to Put Ireland at the Forefront of the Broadband Revolution

**ComReg NGN Summit
8 March 2007**

**Pierre Danon, Chairman
Andy MacLeod, COO**

What are the Drivers for the NGN Core?

- Significant increase in broadband take-up

- A dramatic increase in Broadband usage as popularity of unicast services - VoD, streaming, Time Shift TV, You Tube, grow in popularity

- Network upgrade capable of handling high speed services such as TV

- Faster, broader ethernet connectivity that is cost effective for large corporates and government

> **a broadband network with voice capability not a phone network with broadband capability**

Creating a future orientated network fully leveraging the IP revolution

Anticipating Ireland's Growing Bandwidth Needs

- Today's high end speed is tomorrow's low end

- Ireland will need minimum of 10 Mb/s in next two or three years

Usage increasing rapidly

Email

200 Kilabytes

Email with photo attached

4 Megabytes

Snow Patrol Album

80 Megabytes

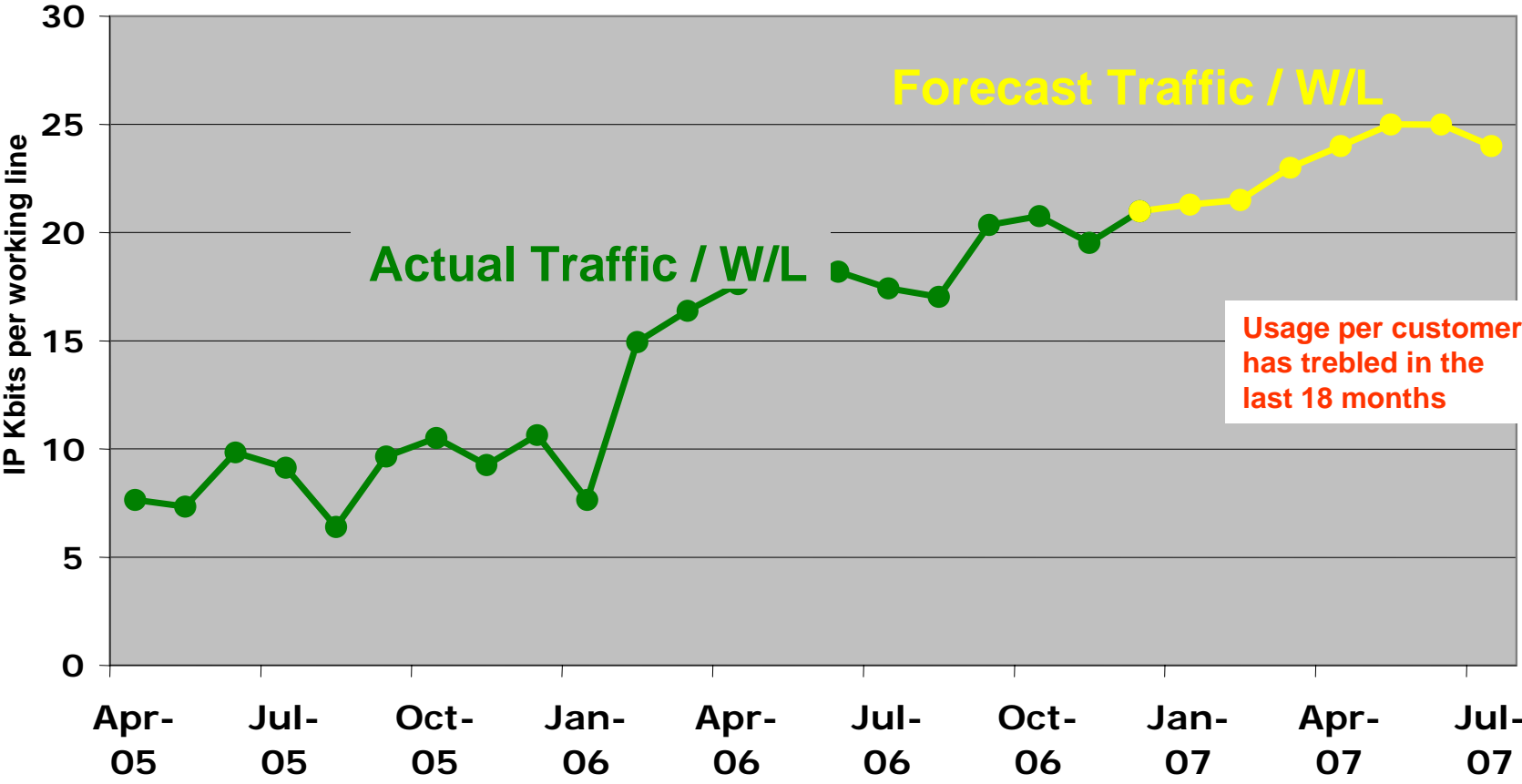**Episode of Desperate Housewives**

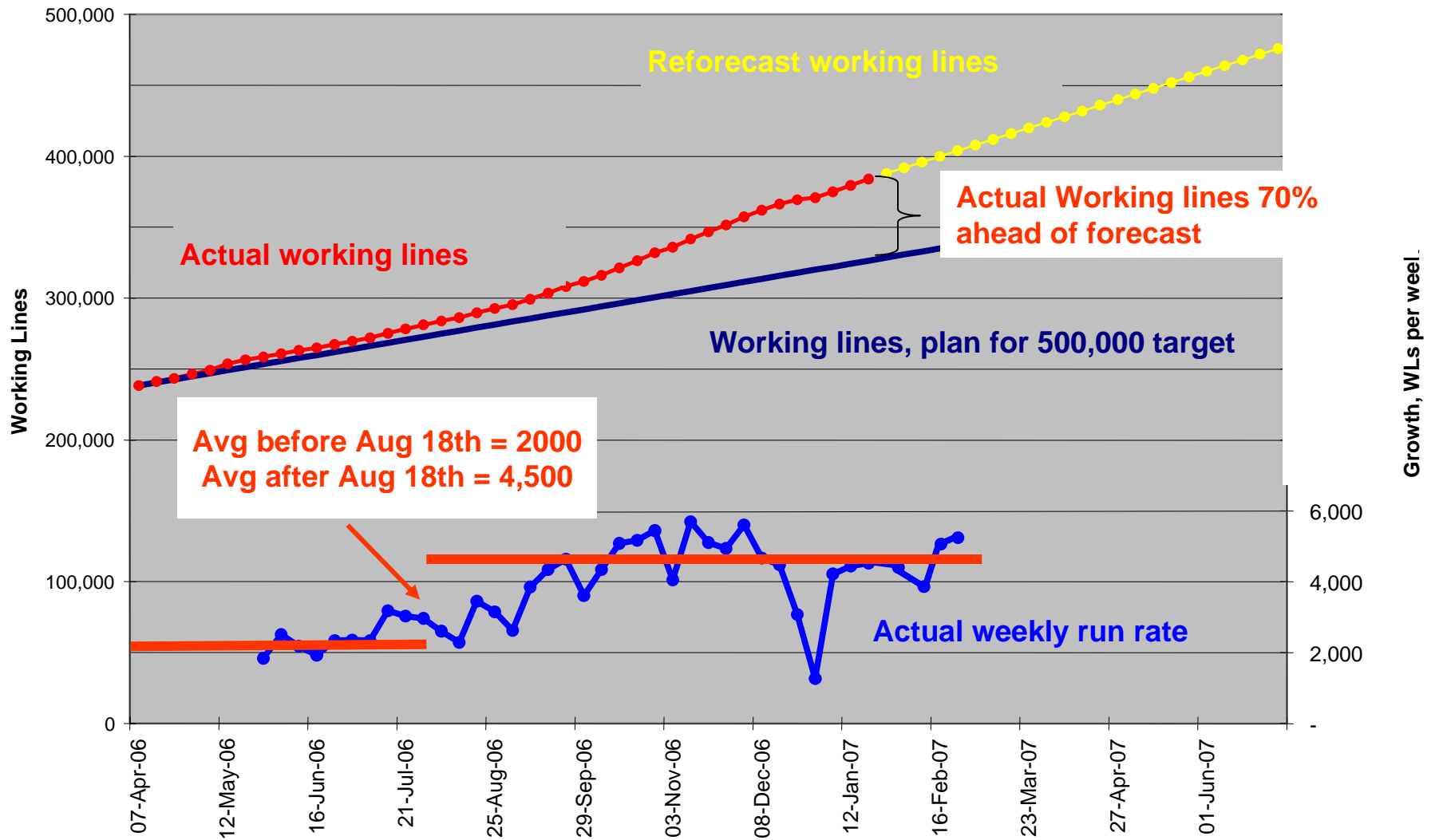**500 Megabytes**

Pirates of Caribbean

3 Gibabytes

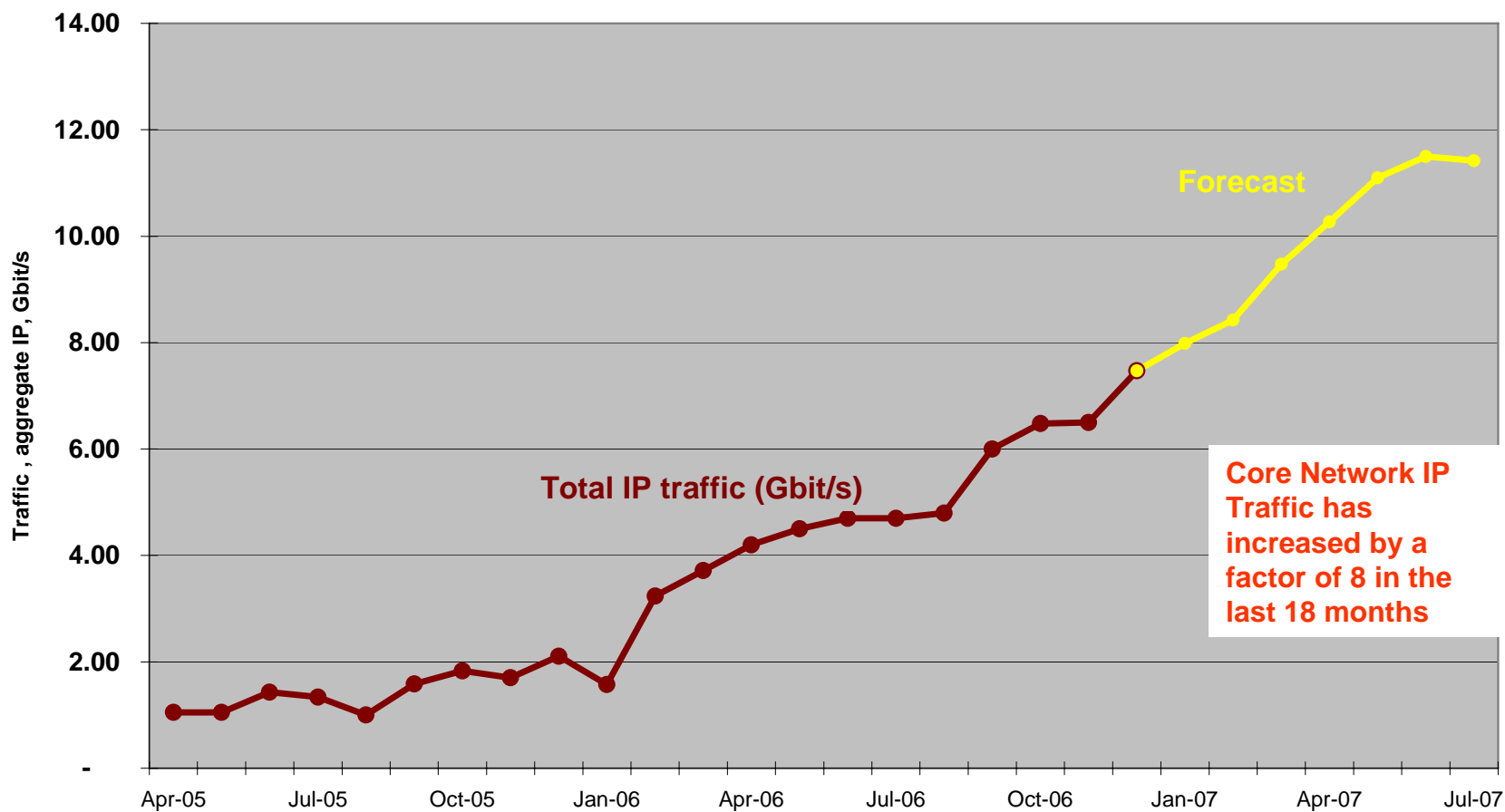*Requires a move from legacy platforms and services to new core network*

Sustained increase in Bandwidth/Customer

eircom

Forecast Traffic / W/L

Actual Traffic / W/L

IP Kbits per working line

30
25
20
15
10
5
0

Apr-05 Jul-05 Oct-05 Jan-06 Apr-06 Jul-06 Oct-06 Jan-07 Apr-07 Jul-07

Usage per customer has trebled in the last 18 months

© eircom

Sustained increase in DSL penetration

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Reforecast working lines

Actual Working lines 70% ahead of forecast

Actual working lines

Working lines, plan for 500,000 target

Avg before Aug 18th = 2000
Avg after Aug 18th = 4,500

Actual weekly run rate

Working Lines

Growth, WLs per week.

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Consequent Core Network Growth

Forecast

Total IP traffic (Gbit/s)

Core Network IP Traffic has increased by a factor of 8 in the last 18 months

Traffic , aggregate IP , Gbit/s

14.00
12.00
10.00
8.00
6.00
4.00
2.00
-

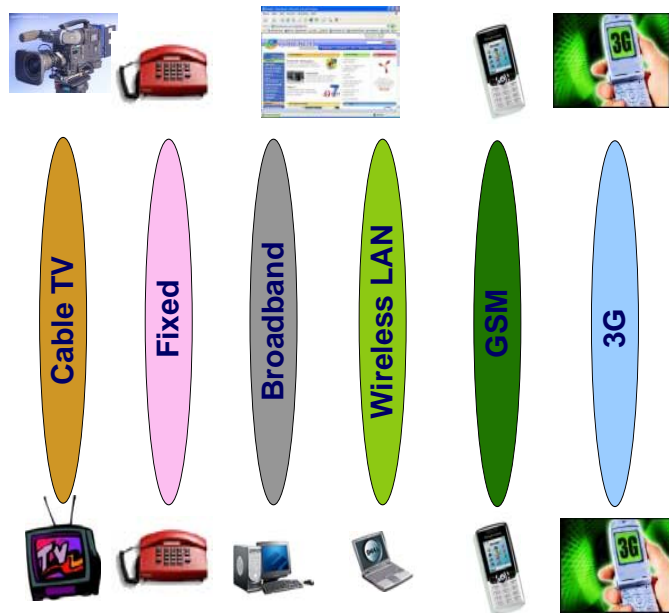Apr-05 Jul-05 Oct-05 Jan-06 Apr-06 Jul-06 Oct-06 Jan-07 Apr-07 Jul-07

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NGN- eircom's Vision for Ireland

- To support and drive **customer take-up** of emerging high bandwidth services

- To build a **broadband centric** network and service platform which is superior to cable and other alternatives

- **Regionalise** highspeed network backhaul, and prevent digital divide

- To create a network which is **open to all service providers** on commercial terms

What is an NGN Core?
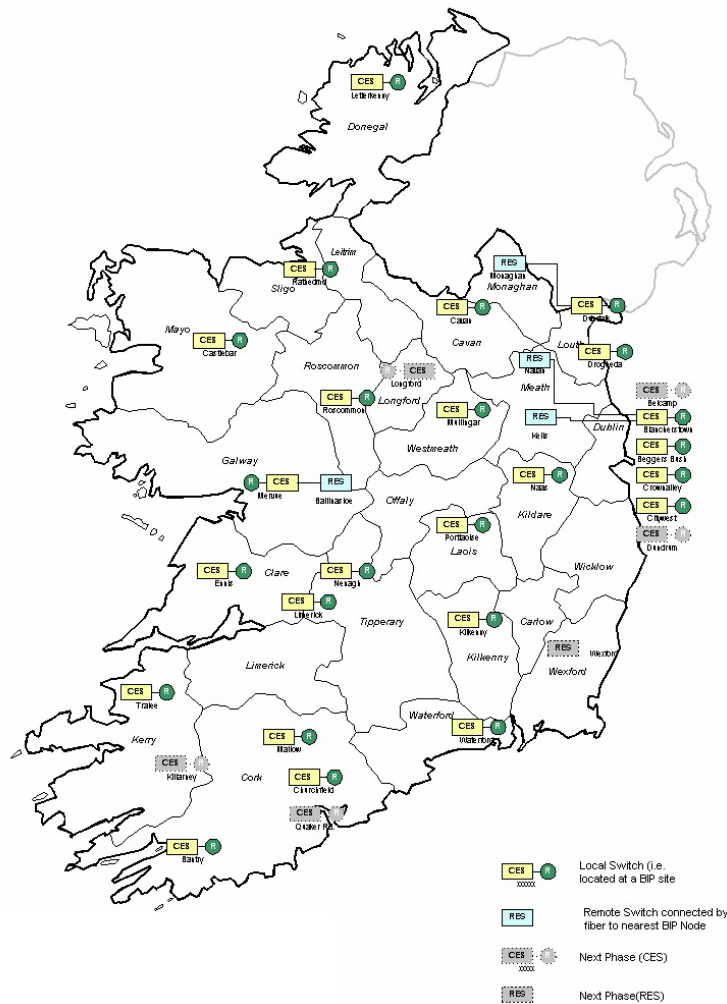
Today
High Street Services

Cable TV

Fixed

Broadband

Wireless LAN

GSM

3G

Tomorrow
One Stop Shopping

Next Generation Network

Broadband & PSTN Access

Wireless LAN

GSM

3G

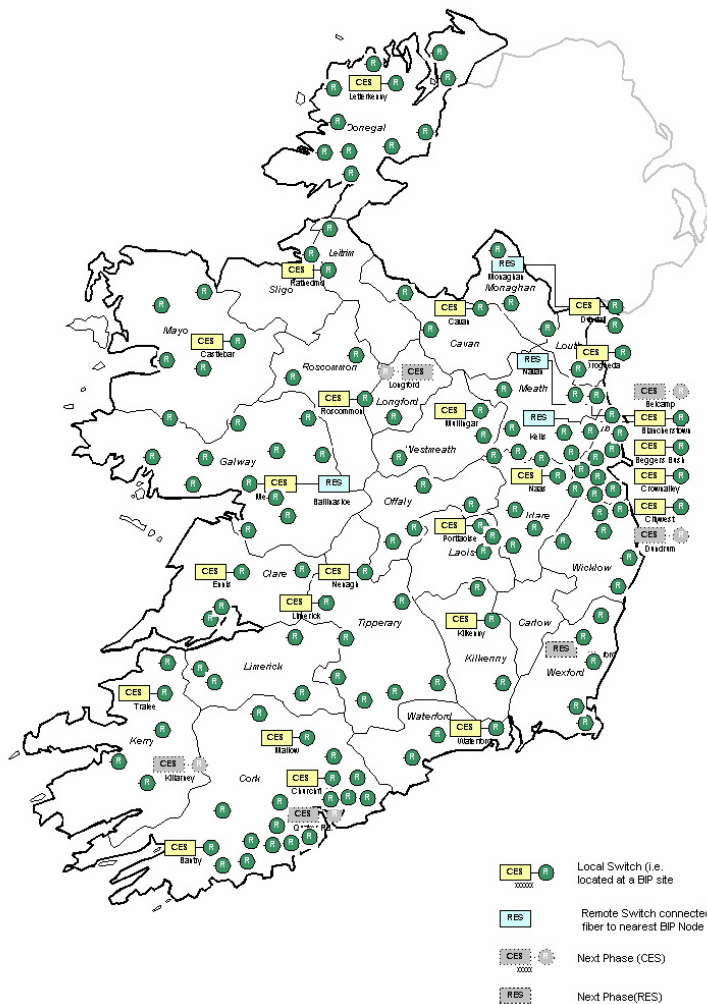# A New Data Transport Highway that Delivers Greater Bandwidth

Quadruple IP VPN/Ethernet Coverage Nationwide

- **The core NGN programme will expand ethernet coverage to 240 sites**

  - 174 sites = 1gigabyte

  - 66 sites = 10 gigabytes

1
1

Quadruple IP VPN/Ethernet Coverage Nationwide

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  - 174 sites = 1gigabyte

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* Indicative map only

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NGN Core
Key attributes

- An exchange based Broadband Centric Network
  - ⇨ **10GBit/s access available at 66 sites nationally**
  - ⇨ **1GBit/s access available at 240 sites nationally**
  - ⇨ **Support for exchange launched High bandwidth Access (10MBit/s) Nationally**
  - ⇨ **DSL growth and enterprise data services provided on new Network seamlessly**

- PSTN Growth provided on new Network seamlessly

- No impact on existing OAO wholesale services
  - ⇨ **No change in interconnect sites**
  - ⇨ **No change in Number Portability**
  - ⇨ **No change in Bitstream/LLU**
  - ⇨ **No requirement for IP interconnect**

Deployment scheduled for Q3 2007

Overall Implementation proposed
Four Phase Plan 2007 - 2015

- **Phase 1: Deploy High bandwidth IP/Ethernet Network to all sites with more than 2000 Working Lines (~240 sites)**

- **Phase 2: Deploy PSTN Emulation server to provide for PSTN growth in Phase 1 sites**

- *Phase 3: Retire Legacy PSTN equipment in Phase 1 sites*

- *Phase 4: Retire legacy PSTN equipment in remaining sites*

NGN Core - Where Do We Stand?

		Functionality Equivalence	Time to Market
BT		✔	☹
belgacom		✔	☹
Deutsche Telekom		✔	☹
telenor		✔	☹
france telecom		✔	☹
kpn		✔	☹
swisscom		✔	☹
TELECOM ITALIA		✔	☹
Telefónica		✔	☹
Telstra		✔	☹
TeliaSonera		✔	☹
TDC		✔	☹

The benefits of NGN are Vital to Ireland Inc.

A bigger data transport highway that delivers greater bandwidth capacity for….

- Large corporate operations
- Govt and spatial strategy
- Other telecommunication providers
- End users
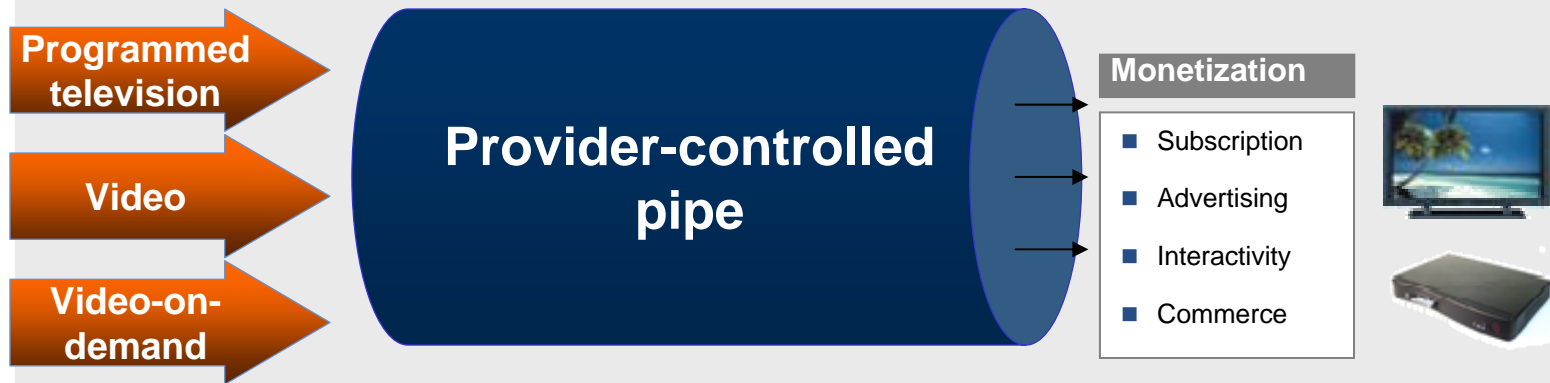
- IP Platform allows development of new services (IPTV)

Moving from a voice based network capable of broadband to a broadband network capable of voice
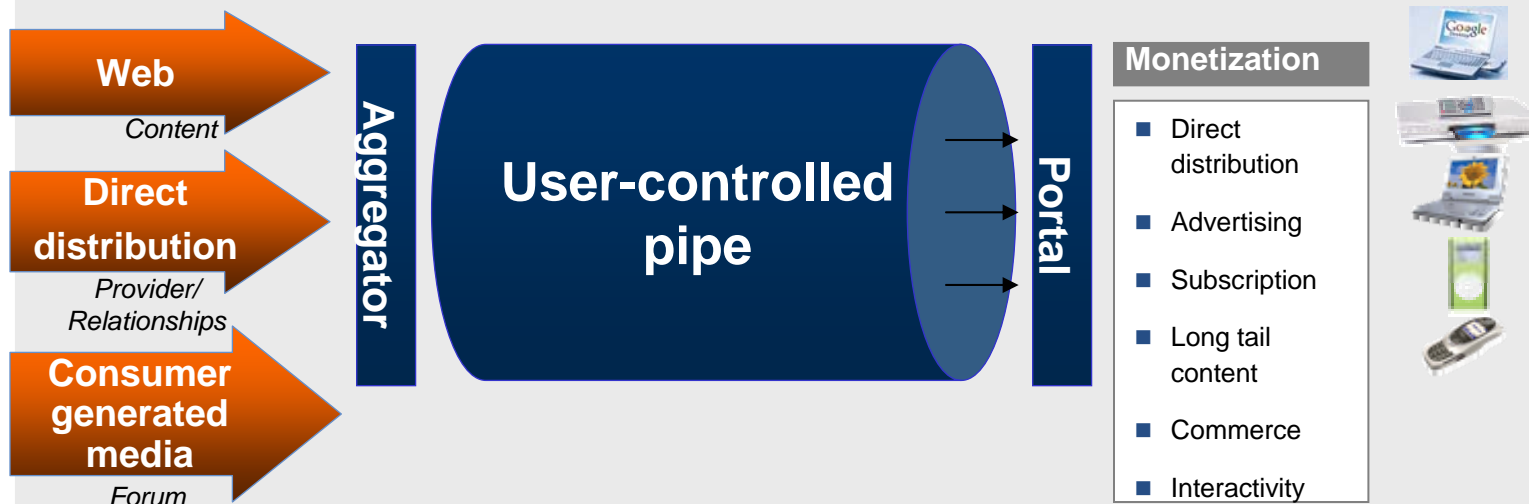
NGN Access

The Digital Landscape is changing

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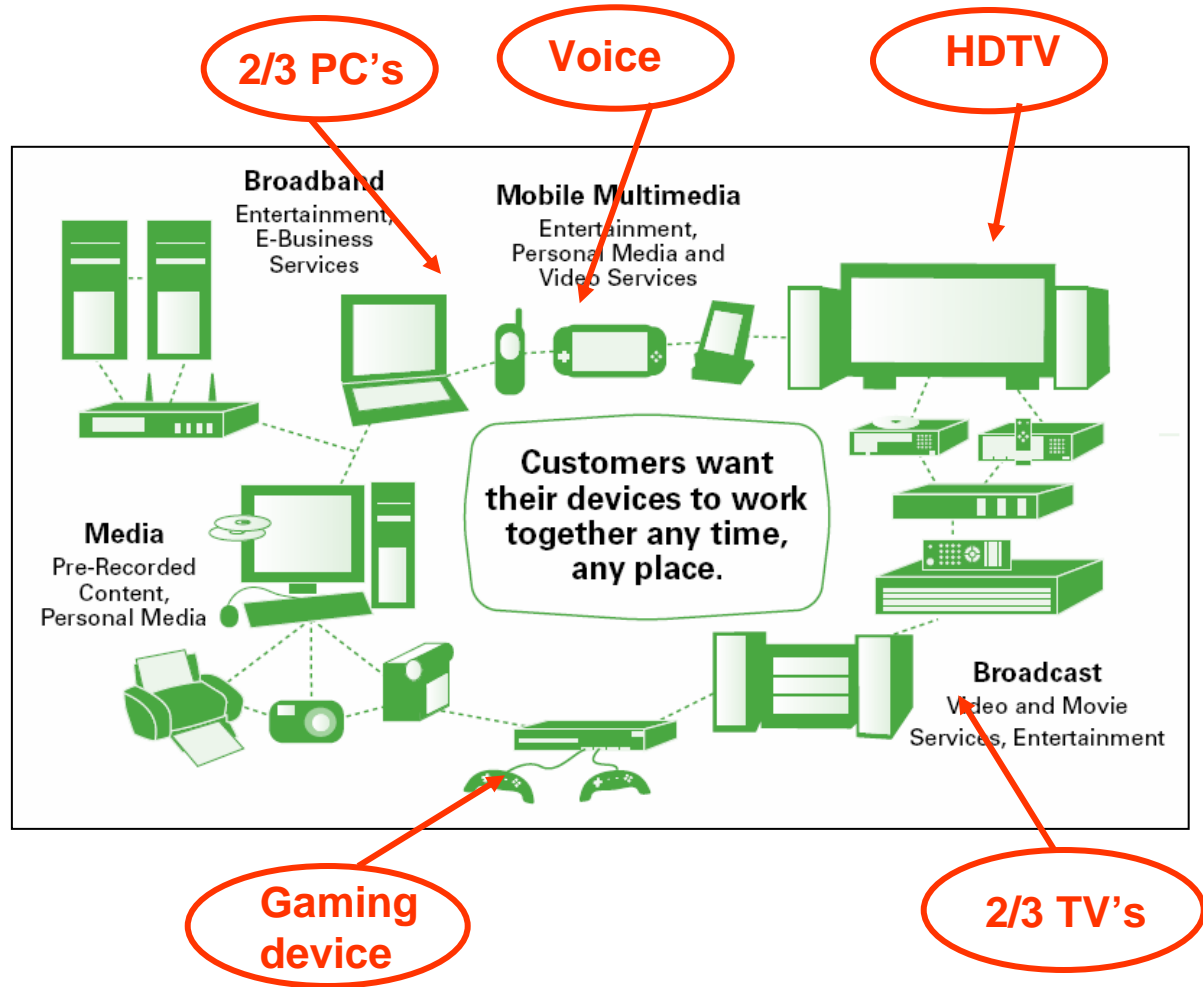## Provider controlled pipe, aka "smart" pipe

Programmed television →

Video →

Video-on-demand →

Provider-controlled pipe

Monetization
- Subscription
- Advertising
- Interactivity
- Commerce

User controlled pipe, aka "dumb" pipe

Web →
Content

Direct distribution →
Provider/ Relationships

Consumer generated media →
Forum

Aggregator

User-controlled pipe

Portal

Monetization
- Direct distribution
- Advertising
- Subscription
- Long tail content
- Commerce
- Interactivity

Consumer

Value capture from a user-controlled pipe requires aggregating content and/or audiences

NGN Access - Why?

- Bandwidth requirements going to increase

- Uncontended 25Mb/5Mb capability based on FTTC/VDSL2 required by eircom Retail and OAO's to compete and deliver new services

2/3 PC's

Voice

HDTV

Broadband
Entertainment,
E-Business
Services

Mobile Multimedia
Entertainment,
Personal Media and
Video Services

Customers want their devices to work together any time, any place.

Media
Pre-Recorded
Content,
Personal Media

Broadcast
Video and Movie
Services, Entertainment

Gaming device

2/3 TV's

Minimum Speed Required = 10Mb Download 2.5Mb Upload

Eircom Not Only Player

Cable

- 800k homes passed in largest exchange areas (includes all LLU exchanges)
- 30Mb/6Mb capability being deployed
- Bundled triple play
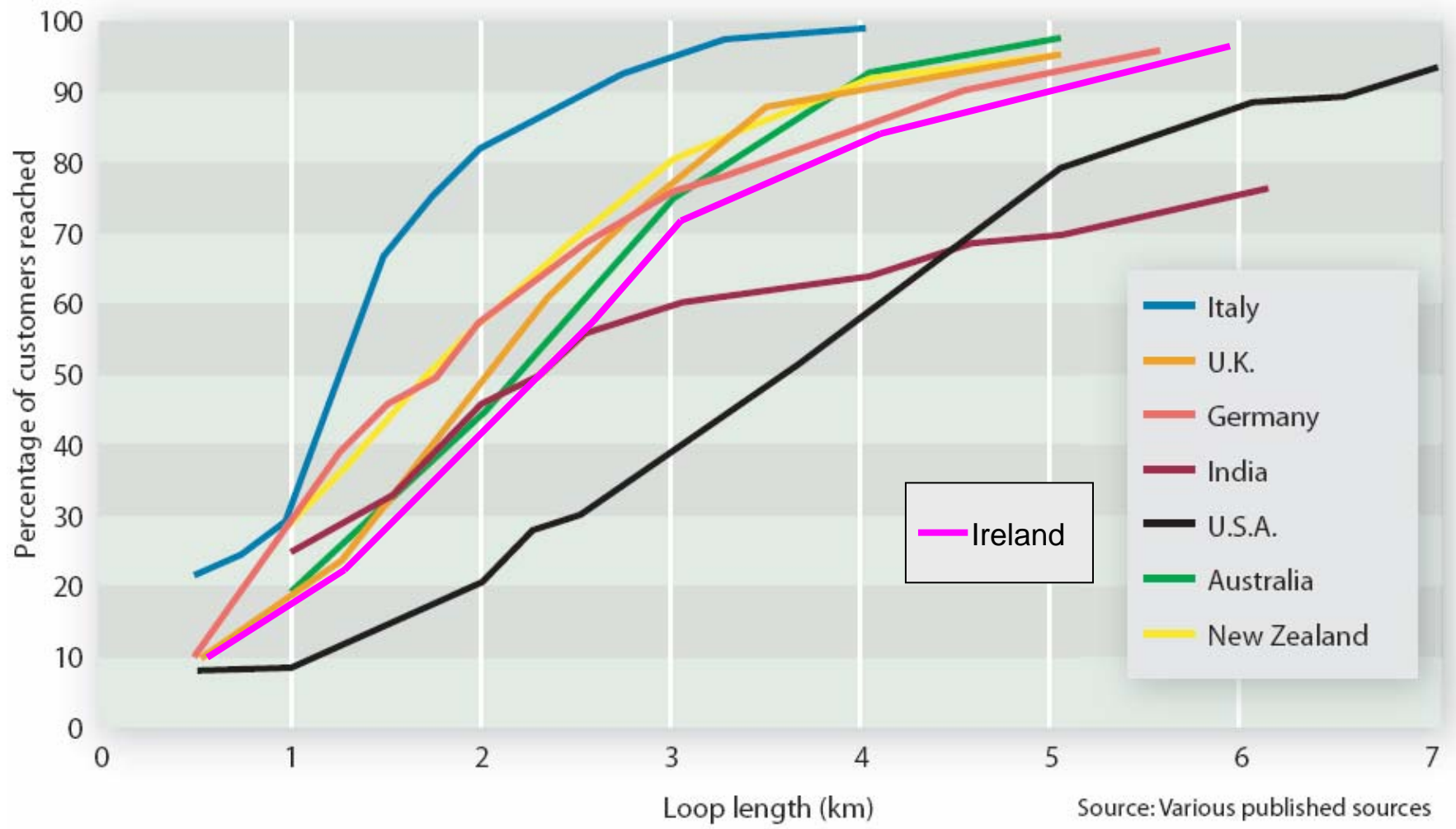
Wireless providers

- 1Mb with HSDPA
- Could progress to higher speeds

Cumulative loop length distribution in various markets

Source: Various published sources

NGN Access - Key Attributes

- VDSL2 electronics are added to the cabinets, fibre is pulled into the Cabinets from exchange's to backhaul the VDSL2 traffic

- All other services (Leased Lines/PSTN/DSL/DSL2+/ATM/Frame relay/X.25/ etc.) remain exchange based

- Uncontended 25Mb/5Mb capability based on FTTC/VDSL2

- No impact on existing OAO wholesale services
  - ⇨ **No change in interconnect sites**
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  - ⇨ **No change in Bitstream/ULL**

- New OAO wholesale services
  - ⇨ **VDSL2 Bitstream access for service providers**
  - ⇨ **LLU access on a 'sub-loop' basis from the cabinet.**

Initial planned rollout of NGN Access

37 customer hubs recommended for initial roll-out

Source: eircom; A.T. Kearney analysis

Comments

• "Early mover opportunity"
  • 37 customer hubs/exchange areas
  • 660,000 lines
  • 1,137 cabinet areas
 	
• Contiguous exchange areas with high concentration of customers
 	
• Relatively high availability of fibre - cost effective deployment
 	
• 2 sites for trial Q3/4 2007
 	
• Few other areas economically viable
 	
• Main cost is civil engineering
 	
• In need of joint effort between stakeholders

FTTC Build Requirements in Dublin

	25 MB/5mb
Converted nodes	1,130
New nodes	7
Fiber to converted CCPs (kms)	612
Fiber to new nodes (kms)	10

Initial FTTC Exchange Areas

eircom

Site	Name
SKL	SHANKILL
PMK	PORTMARNOCK
SRD	SWORDS
TRE	TERENURE
SND	SANDYFORD
NWL	NEWLANDS CROSS
FOX	FOXROCK
PRP	PRIORY PARK
ROC	ROCHESTOWN
DLA	DUNLAOGHAIRE
NUT	NUTLEY
MHZ	MALAHIDE
DDM	DUNDRUM
CRL	CRUMLIN
WAL	WALKINSTOWN
CEE	CLONEE
TLH	TALLAGHT
CLD	NANGOR ROAD
BRI	BRAY

Site	Name
RMS	RATHMINES
CLK	COOLOCK
PAL	PALMERSTOWN
BDT	BLANCHARDSTOWN
PHB	PHIBSBORO
NMN	NORTH MAIN
SHP	SHIP STREET
WHI	WHITEHALL
SRL	SUMMERHILL
DBN	DOLPHINS BARN
FNG	FINGLAS
STN	SUTTON
BBH	BEGGARS BUSH
CAB	CABRA
SAN	SANTRY
BLP	BELCAMP
CLT	CLONTARF
CRA	CROWN ALLEY

Exchange areas subject to review during detailed design phase

Why VDSL?

- Only VDSL can guarantee 10Mb to 90% coverage

- Future-proofed
  - Offers possibility of higher bandwidths for future
  - Potential for much faster speeds to a wider percentage of the population

- Cable will offer up to 50Mb and telco industry needs to be competitive

- Ducting already done in some urban areas - ie Cost of fibre is marginal

- Majority of PTTs in Europe have chosen VDSL

NGN Access - Where Do We Stand?

		Access Strategy	Timing
BT		**ADSL**	😐
belgacom		**VDSL**	🙁
Deutsche Telekom		**VDSL**	🙁
telenor		**VDSL**	😐
france telecom		**Fibre**	😐
kpn		**VDSL**	🙁
swisscom		**VDSL**	🙁
Telefonica		**VDSL**	😐
TDC		**VDSL**	😐

What does this mean for Service Providers

Technology choice and speed of deployment are eircom decisions

- At a minimum, make all our regulatory obligations available on NGN

- We are open for discussion on how to mitigate the stranding of legacy assets

ComReg's role to provide leadership on how service providers have access either on bi-lateral or multilateral basis

Q & A