

Commerce Commission: Broadband at a Crossroads Conference  
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Langham Hotel, Auckland

# NGN Services & Applications



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**COMMUNICATIONS**

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# Topics of Discussion

Fact or Fiction ?

NGN Building Blocks

Voice 2.0

Applications



# Who are we ?

- WxC is a Kiwi owned/operated telco started in 1996.
- Morphed into an IP-based next-gen telco in 2002.
- Specialise in converged IP-based telecommunications solutions across the customer spectrum.
- Switched 2 Billion carrier grade VoIP minutes to date.
- Now more of a software development shop than a Telco/SP



# Our Model

- Utilise Best of Breed NGN network elements (Broadsoft / Nextone / Cisco / Juniper)
- Treat all access networks as “plumbing”
- Treat all telco services as “applications”
- Maximise in-house software development capabilities using Web/Voice 2.0 technologies
- Aim for customers to have complete control throughout lifecycle of their NGN services.



# NGN “101”

- Future for all Telco and Service Providers.
- Core made up of IP packet-based, QoS-enabled transport technologies.
- Network Elements consists of soft switches (Voice) and IP Multimedia Subsystems (IMS).
- Facilitates “One-Stop-Shop” scenarios



# NGN Myths

- A few “untruths” about NGNs perpetuated by uninformed sources.
- Too much focus on specific delivery mechanisms.
- Leads to exaggerated benefits of one access technology over another.
- Almost no focus on actual end user apps/services.
- Castalia report is recommended reading



# NGN Myth #1

~~*“He who dies with the most network, wins”*~~

- Access networks are simply enablers in their own right.
- Major component of NGN technologies but do not necessarily drive service uptake.
- Customers are interested in the application & service proposition - not what the network access technology is.
- NGN is all about Communications Convergence and Presence Management.



# NGN Myth #2

~~**“Next-Gen apps require FTTx to operate”**~~

- Actual Application Bandwidth Usage
    - Web Surfing / Gaming / Email / P2P / Remote Office VPN
    - Voice call over IP (PSTN replacement @ G.729)
    - Fax/Data call over IP (PSTN replacement @ G.711)
    - Streaming Audio over IP (Dolby Digital 2.0)
    - Personal Video Conferencing over IP (P2P via H.263)
    - Streaming Video over IP (640x480 VGA via H.264/MPEG4)
    - 10 x Concurrent Voice/Fax Calls (SIP Trunking @ G.711)
    - 25 x Concurrent Voice Calls (SIP Trunking @ G.729)
    - Streaming Movies over IP (High Def Quality via H.264/MPEG4)
- |            | Line Speed |
|------------|------------|
| < 40 Kbps  | < 40 Kbps  |
| < 90 Kbps  | < 90 Kbps  |
| <128 Kbps  | <128 Kbps  |
| < 200 Kbps | < 200 Kbps |
| < 350 Kbps | < 350 Kbps |
| < 900 Kbps | < 900 Kbps |
| < 1 Mbps   | < 1 Mbps   |
| < 4.5 Mbps | < 4.5 Mbps |
- All of the above can be deliverable by xDSL technologies today
    - 90% of all Telecom DSL lines are mandated to deliver >10Mbps download speed by 2012
    - At least three other providers have LLU-based xDSL lines of same or better spec

***What other apps do RES / SME customers want or need ?***



# NGN Myth #3

~~“\$1.5 Billion on FTTH is the answer”~~

- Must have been a hell of a question...!
- No point in having superfast last mile when actual constraints are elsewhere (Internal wiring / National Backhaul / International Bandwidth)
- DSL variants currently support >98% of RES and SME IP-based application requirements including PSTN replacement services, ISP & Data services.
- Government should define outcomes - not lead with a specific IP transmission technology (ie what is the problem to be solved?)
- Definitely FTTP for businesses, hospitals, schools, new subdivisions etc
- Technology neutrality needed to ensure that the RONZ can also be supported.



# NGN Myth #4

## ~~“Telcos/ISPs make money out of Broadband”~~

- There is no money in broadband internet-only services.
- Customers expect premium service but don't want to pay for it.
- International bandwidth costs approx \$250-300 per MB.
- Running an ISP at 25:1 contention ratio = cost of \$10 per month / per user (on top of access & backhaul charges).
- Calculation gets much worse when you assume FTTH last mile (ie 30MB access at 10:1 ratio = \$750 cost per month / per user).
- The costs are simply too high.



# Fibre To The Home

- WorldxChange is the only telco in NZ already offering full next-gen services via FTTH.
- Other examples of niche market infrastructure providers attempting FTTH initiatives (Pacific.Net, etc) but not as a Telco/Service Provider.
- WxC won Telecom Wholesale tender in October 2007
- Currently service six subdivisions nationwide via Telecom GPON FTTH & NGN backbone.
- We are “playing the game” whilst others offer expert commentary from their armchairs.
- More than qualified to stand on the FTTH soapbox.



# Fibre To The Home

## Pros

- Future-proofed access type
- Synchronous speeds
- Capable of large bandwidth delivery
- Pilot includes VoIP, Internet, Video, IPTV, Security etc

## Cons

- Lack of FTTH is not the current bottle-neck
- Expensive infrastructure
- Costly backhaul requirements
- Not necessarily required for Triple/Quad plays
- Customers do not want to pay more for it
- Every application & service in the pilot can also run over DSL2+



# Fibre To The Home

## The Facts

- *68% of customers are using 30M/6M FTTH for phone-only services (0.3% of available bandwidth)*
- *Average data usage < 3GB per month per user*
- *Ironically, close to Castalia report findings (60% Broadband users < 5GB month)*

Government needs to consider the real world in any plans



# NGN Building Blocks

Network Infrastructure

IP Interconnect

Applications & Services



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Next Generation Networks



# Network Infrastructure

## xDSL (BUBA & EUBA)

- Will be available to 90% of the country at speeds >10MB (2012)
- Default access network for PSTN replacement (VoIP)
- LLU facilitates multiple providers of bitstream access

## Wireless

- Various regional and nationwide networks are available
- Generally limited bandwidth does restrict service offerings
- 3G / 3.5G / 4G (LTE) / WiMAX / WiFi / Satellite etc

## FTTC/FTTP

- Currently available in the main centres
- Used primarily for SME/Large Business and Campus connectivity
- Already Open Access networks (including Telecom)

## FTTH

- Delivery platform for all telco services into new subdivisions
- Pilot also testbed for Power / Emergency Services / Structured Cabling



# IP Interconnect

## Technical Specifications

- There is no single global standard for IP Interconnect yet
- Interoperability issues are a major roadblock
- TCF IP Interconnect WP are devising standards for NZ
- IPI must take priority over inter-network end user services (CBR)

## Commercial Agreements

- Treat all IP packets the same (ie ISP Peering vs VoIP Interconnection)
- Almost all Tier II telcos already operate IP Interconnects under Coasian philosophies
- First jurisdiction in the world to completely embrace Coasian B&K model ?



# Applications & Services

## Broadworks

- World's leading provider of VoIP application software
- Nearly 7 Million deployed VoIP lines globally
- 300+ Telecommunication Service Providers around the world (8/10)
- Five NZ Telcos have Broadsoft platforms in their NGNs
- Recent global “Mashup” to develop NGN apps/services (Voice 2.0)
- Two WxC developers in the top 6 in the world – one came second overall
- Only telco to enter competition
- Proved that NGN telcos should invest in internal software development teams



# Applications & Services

## Voice 2.0

- Collective term - describes various communications technologies that enable end users to have greater control over their communication mediums.
- Similar concept to “Web 2.0” (YouTube / Facebook etc)
- Examples of Voice 2.0 applications & services
  - *Fixed/Mobile Convergence*
  - *Voice/Video/Data Convergence (“Triple Play”)*
  - *Presence Management*
  - *User Portal*
  - *Click to Call*



# Fixed/Mobile Convergence

- No requirement to have own fixed and/or mobile network
- Can already provide seamless handover between technologies
- Allows for single number contact for all services with full IN functions (fixed line / mobile / fax etc)
- NZ Number Plan allows for 070 xyz Personal Numbers that suit this model

Example:



\* Image courtesy of iCall



# Voice/Video/Data Convergence

- Also known as “Triple Play / Quad Play”
- Single physical access network carries multiple IP services
- One-Stop-Shop ordering, provisioning, billing and management
- Online portal that facilitates full customer control of services

Example:



**brightspark.org.nz**

Home Installers Users Providers About Contact us

All you need to know about fibre from Brightspark, New Zealand's official information source for developers, builders and homeowners alike.

**Installers**  
For property developers, architects or builders installing new fibre connections.  
[Find out more >](#)

**Users**  
How to get the most out of your new fibre connection at home.  
[Find out more >](#)

**Connect**  
Get connected to fibre now and enjoy a range of exciting services. Find your provider to get started.  
[Find out more >](#)

**Latest**

- [Fibre at home - user guide](#) (PDF 637kb)
- [Fibre on site](#) (PDF 1028kb)
- [Telecom Wholesale Fibre presentation](#)
- [Telecom subdivision pilot tracking well](#)



# Presence Management

- Completely changes the traditional telco model (one service to one access)
- Centralised control of multiple contact mediums
- Smart secretary / efficiency gains / rules-based decision making
- Allows services to be layered over mobile technology without significant additional charges to the end-user
- Customer controls Disaster Recovery requirements

Example:



# User Portal

- Customer controls what features are enabled
- Additional services can be purchased/added in real time
- Facilitates control and use of VoIP services anywhere in the world
- Results in customer loyalty as service is online / real-time / global

Example:



# Click to Dial

- Dial direct from interactive web site (one line of code)
- Can be used to generate inbound contact (ie 0800) or outbound contact (integrated into CRM)
- Works on all available web-enabled devices
- Simple but effective value-add for customers

Example:

The image displays two overlapping screenshots. The foreground screenshot is a window titled 'VFX Manager' with a 'Primary Line' dropdown. It contains three sections: 'Placed Calls' with four entries (e.g., 099501345, 2008-10-03 13:42:47), 'Received Calls' with one entry (094138606, 2008-01-14 16:05:03), and 'Missed Calls' with five entries (e.g., 094155572, 2009-02-15 15:54:00). A mouse cursor points to the first entry in the 'Placed Calls' list, with a tooltip that reads 'Double click an entry to dial that number'. The background screenshot shows a web browser displaying a customer support page with a 'Customer Information' section containing fields for Name, Phone, Email, and Address, and a 'Customer Details' section with a table of call records.



# How to make it all pay ?

## Trade Secrets...

- Focus more on NGN services and less on NGN infrastructure
- Implement industry-wide IP Interconnection.
- Invest in smart people.
- Embrace Web/Voice 2.0 integration
- Don't outsource software development for NGN services..
- Migrate converged IP services to subscription-based models.
- Think outside of the square...

***“Fortes Fortuna Juvat”***  
*(Fortune Favours the Brave)*



# Thank you



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# Q&A



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