



Day 1: 29th April 2008
Global Operations

Keynote:	Adam Drobot
Segment Chair:	Martin Guldberg

KEYNOTE

Adam began by setting the stage in that we are living in exciting times but have a long journey ahead – although now is possibly only the tip of the iceberg.

For example, how should we be handling pdf's online to ensure that they are indexed/discoverable, updated and correlated?

Highlighting Moore's law he stated that the trend was likely to continue for the next decade. Another example is that of the iPod – in 1998 this would have been extremely large.

Adams view was that we are likely to live in a world of continuous change with web services becoming part of every day life.

Adam used a video of Charlie Chaplin to illustrate the fact that when we build new things, strange things can happen. Thinking back to hurricane Katrina – we wish we had tools to tell us that the hurricane will strike – tools which we trust.

Using the example of Amazon.com – analysis of what was bought from them by an individuals can be used to predict the actions or desires for future behavior – this becoming an integral part of services and applications.

Adam went on to describe the concept of 'immediacy': whereas we tend to describe networks in terms of 3 or 4G a different axis is needed – 'immediacy' – the orchestration & flow of data delivered for a given purpose which takes into account that data ages over time.

Adam went on to describe how functional & non-functional requirements are often handled with functional requirements often being the easiest parts to address. Non-functional requirements however, are more neglected but it is important to deal with both types of requirement. He stated that is was worthwhile having architectures but you must address how these are put together into building blocks – don't build in obsolescence.

Often the formality of processes can be the downfall – software should be the glue that holds everything together.

The cost to repair defects after design/implementation was mentioned – this applies not only to software but to the ship building industry for example. The

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costs to repair a defect later in the lifecycle can be high – these are best done upfront.

Q&A (slide 25)

There was a question of whether greater cost savings were realized from reviewing/testing than from outsourcing arrangements?

That depends on whether the outsourcing firm do the reviews or testing – again, early in the lifecycle is key.

Next Generation Networks: What's Happening?

Executive Panel Leader:	Kelly Krick
Panel:	Koichi Asanti
	Carlos Solari
	Steve Griset
	Mark Pugerude replacing Woody Ritchey

Executive Panel

Each panel member gave a brief synopsis of what is happening in Next Generation Networks.

Mark:

Wireless is looking *nearly* recession-proof with user end-points growing dramatically and fixed accesses reducing in proportion. Increasingly we are converting the air interface to an IP end-point.

How do wireless operators stop being a 'dumb-pipe' in the sky? – The answer lies in user management. Silos need to be ripped out and access-agnostic network elements are needed.

How do you enhance user experience?

For example, AT&T and the iPhone: direct purchase was not initially available. There were two camps – the operator and subscriber – which required a matching of needs. The time-lag on the operator side is potentially very complex. NGN's need to understand how all of this plugs and plays with existing architectures in order to monetize new services – this is the driving force to keep costs down. The gains won't be realized unless the architecture is collapsed down. There is a need for network intelligence for example when moving between different architectures. It also needs to be service-aware to keep the user experience. Selective routing is required to pull all services at the same time.

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Carlos focused on security in NGN's, quoting 'Enterprise 2.0' and 'network wherever you go for example on the train or on aircraft. What about security? His view was that this had been addressed wrongly to date and was primarily concerned with securing the perimeters. Carlos made the point that the network was not a LAN now – but extends out to 3G and 4G connections and there is a need to ensure that the content on end devices remains secure.

For example, it used to be teenagers using text messaging – but now can be applied to the emergency services. Security has been a virus problem to date – and now the policies need to go deeper as it takes no time to attack. For example there are now social engineering threats, phishing etc which reduces trust for businesses. Standards are seen as boring but without them how are we going to integrate the pieces? This is critical for the future. There is a risk that these will come too late to retrofit which will have an impact on CNI's and their data.

Steve spoke of his view of the future of Telecoms offering the view that broadband will be across all accesses and that IP will be the base protocol. For example the iPhone which has some telecommunication application and the rest are connected to the internet. Software applications are the differentiator. Steve also raised the need to set up IPX's.

Koichi spoke about some of the trends in Japan where ADSL & FTTH are crossing, overall ADSL is decreasing. However, fixed line phone numbers are decreasing in overall volume. Cellular volumes are still seen to be increasing but the market is becoming saturated with POTS & ISDN in decline generally. Koichi offered the view that Asia is a leader in broadband penetration.

Q&A

Anil offered the question of when are we as a community going to call the next generation the current one ?! What are the milestones or goals to achieving NGN? What should the network do to be described as this?

- Mark offered the view that the network would be NG when it had full interoperability in the fixed/mobile world.
- Kelly offered the view that it is when the application automatically connects to the network without having to force a manual choice.
- Carlos offered the view that it's when the user can use mobile appliances and not have to worry about communications & security.

Advice from the panel was sought regarding security & standards management – is there a better way to generate security metrics?

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- Carlos indicated that standards are important to satisfy compliance requirements. In order to figure out how to apply security there is a need to devise a way of measuring it. Is there a ways to take this to a standards body as security is a relative risk? The good news is that ITU X805 has the ability to measure security for the first time. There is the need to apply a consistent and rigorous approach to security & to satisfy compliance requirements. We should be able to know the state of security of a product & how to make business choices based on risk. This needs to be industry-wide across the delivery of telephony. Standards that can be applied for security is one building block to this to enable all to deliver reliable systems to the public.

The way NGN's are changing the way Operators are running networks was raised.

- Koichi indicated that PSTN is in a stable state but that NGN is more application orientated. This relies on dependable infrastructure operation and to be competitive in the market this is not necessarily just traditional telecom services. NGN will support all
- Mark stated the need take into account a transition period and to preserve the knowledge of the old during the transition. NGN's need to leverage IT & software aspects in the telecom network
- Carlos used the example of a global bank and getting out of managing an IT infrastructure and delivering the rest of it to an ISP – with all equipment belonging to the ISP which it then supplies as a service

SIP & IMS-based models were mentioned and the fact that operations are at risk unless products add value. However there aren't many applications that align with this – until then, how can SP's leverage this?

- Mark indicated that one of the ways to address this was to monetize applications – provide a better user experience for example AT&T & the iPhone. By using enhanced services & creativity plus service/location-aware applications
- Steve highlighted the need for capability to be shared amongst operators – not just stovepiped. This needs to be an interoperability factor and not just available on one type of network.

The definition of NGN was raised and whether this broad term should be defined by industry. This was put the panel for their views.

- Mark indicated that it might be a bit premature yet for NGN 2.0 and 3.0 definitions. This is not easily defined yet and there is currently no easy answer.
- Carlos indicated it is also tough to define 4G

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Security as a service was debated, in particular:

- Carlos indicated that networks will be smart enough for example to wake up the TV to alert of a forthcoming tornado.
- Mark offered that there are 2 elements: security & privacy. We should use these as the problem statement for NGN's for example, locating people means different things to different people. If this is not done in line with standards then this is open to abuse.

Spam in the context of NGN's was raised for discussion:

- Carlos stated that SPAM was a big concern ignoring the congestions nuisance, as it is generally a delivery mechanism for something else. The use of whitelists was mentioned and the problem that bots change the configuration of things in a stealthy manner. There is a lot of technology around integrity checking however not a lot of answers on this currently – many concerns also.

The amount of investment to provide NGN's was raised and the business impact to get from the sold to the new. What is going on to make it happen quicker?

- Steve gave the view that it is driven by the consumer for example the uptake of the iPhone – there is no killer application yet and that more simplicity is wanted.
- Mark used the example of femtocells – where nothing new needs to be bought but that the experience needs to be made unified. It is possible to leverage as much of the existing architecture as possible to squeeze revenues then morph into the NGN.

Some of the risks in moving towards an NGN were raised; in particular the manageability is often forgotten.

- Carlos stated there is a lot of information that needs correlating, automating and that in general, more automation is needed. All aspects need to come together and be shared and that decisions need to be made quickly, perhaps automatically. We are starting to see this within the industry.
- Steve offered the view that we will never see network management made simple – perhaps go for the thin client approaches in order to make devices more manageable.
- Koichi highlighted the need for a unified approach for all existing aspects into the NGN architecture. The NGN should use new tools/facilities

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Day 2: 30th April 2008
(Next) Next Generation Networks

Keynote:	Kevin Peters
Segment Chair:	Scott Poretsky

KEYNOTE

Kevin spoke about the pursuit of resilience within AT&T and factors affecting this. He highlighted the potential ultimate political issue in providing resilience as being that of war – not necessarily in the providers own country. The use of checklists to assess the level of preparedness was also highlighted. Kevin raised the question: How many providers have a documented DR plan? How many of these have practiced this?

He also expressed the view that it is no longer just about the network as systems being down are often as debilitating as the network components being down. Kevin offered the view that it's a layered process with DR sitting at the top and the need for a business continuity discipline to be in place within organizations. Emphasis also needs to be placed on items that seem trivial but that are important: e.g. How do you know that the people within your organization are ok?

The 'human dimension' was mentioned in the context of never being able to rely on humans at sites to be able to respond in an emergency. Hence the need in some circumstances to deploy resources from elsewhere on occasions. There is also the obligation for the organization to care for the wellbeing for the resources deployed into that disaster zone.

In managing these types of situation, Kevin detailed the need for well defined monitoring and managing processes with a dedicated team and the provision of trailers for all technologies to be able to provide emergency communications. Smaller outages were cited as the ideal learning grounds for larger incidents. The operating constraints in hazardous environments were also mentioned briefly.

The most important function was given to be the Global Network Operations Center and the removal of barriers that get in the way of restoring of service. Environmental factors such as prevailing weather were also listed as one potential hurdle to restoring service.

For example, an influenza outbreak has impacts as the workforce is working from their houses and there is a requirement to socially distance people. Deployment of masks & gloves may be appropriate dependent on circumstances. Cross training between operations centers is therefore a good idea – as the provider must have experienced people within a centralized command and control structure.

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Business Continuity & Disaster Recovery

Distinguished Experts Panel Leader:	Christine Sorenson
Panel:	Steve Waken
	Mike Timmons
	Takaya Kitaguchi
	Norhiro Fukumoto

Distinguished Experts Panel

Each panel member gave a brief synopsis of their view on Business Continuity & Disaster Recovery

Steve:

Steve highlighted that things and that 9-11 was the wake-up call to signal this. The essence of BC planning being what does Business Continuity mean to you as an organization? One good example of this is a work stoppage (strike) – what do you do or how do you backfill? How much money is the organization prepared to spend backing up? – this is a risk level vs. cost decision.

Looking at this from a business perspective – there is a need to look at the processes and not just the assets, also to understand the value of processes. After this, a framework is needed to be put in place and the associated reporting hierarchy – with expectation for individual areas to develop their own plan and subsequently build on it.

Some key learning points that systems, switches, people aren't separate – they are all inter-related and that this all comes back to money.

Mike:

Mike indicated that a BCP should be more comprehensive – not only detailing how the organization can survive, but how it can continue to make money. More regulations and standards may draw us as an industry into formal BC planning. Mike stated there are many products available to help with response to a problem.

Ultimately, the DRP needs constantly updating, followed by going back and testing that plan. There is a need to ensure that the failure times can be met, tested and checked.

Takaya brought some of his experiences of earthquakes and tornados in Japan and their relevance to DR & BC. As a result of these natural phenomenon, DR is

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taken very seriously in Japan. Storms and heavy rain can also cause significant problems.

Types of damage were given as:

- Direct e.g. poles, buildings, cables, conduits
- Indirect e.g. power and water supplies

Both of these can cause service disruption to the provider.

The increase in network traffic as a result of people calling friends/family to check on their status was also mentioned.

Takaya stated 3 ways providers are approaching dealing with these factors:

1. Continually updating the network to increase reliability and enhance disaster resistance
2. Restore services quickly using highly mobile response equipment in coordination with defense forces
3. Secure essential communications in order to prioritize calls, offer alternative mechanisms to people involved in a disaster

Norihiro presented a case study of a recent earthquake which resulted in the need to install international connections from scratch due to repair cable ruptures.

The affect was also compounded by the KDDI cellular networks also affected by the disaster

Norihiro also highlighted the importance of congestion suppression schemes in disasters and stated a that a second prototype is currently under testing

Q&A

The effect of the Internet on BC &DR plans was raised as an opening topic for discussion by the panel

- Mike indicated that the speed of response was faster and that there were much better tools available to respond. Overall the ability to communicate and respond is much faster
- Steve stated that consumers expect more and that it raises the bar for SP's to keep things running.
- Takaya stated that the priority focus was on ordinary (voice) communications first and internet second.
- Norihiro stated that the most difficult thing is to avoid is congestion.

The issue of whether consumers should be scared by all of this was raised:

- Steve stated that a DHS report offered the opinion that the internet as a whole was not going to fail however there could be problems. The view was to tackle the congestion points first and that the bigger the network the more the ability to ride through the spikes hence the core will probably be ok. The access network was stated to be a larger network so therefore

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less of a problem. The importance of dialogue with business customers especially was mentioned. The identification of essential support functions and the ability for them to work from home was considered key.

Software tools for the documentation of business continuity plans were highlighted.

- Mike stated that decision tree analysis tools were historically expensive however there are now Excel plugins available which are easily distributed including a 'one page manager'

The question was raised of how supportive regional and local government is in the DR process in helping with access to facilities and other vendors at the time of crisis.

- Steve stated that in his experience – better than expected however it can vary according to state

Many people in Tokyo live in the suburbs and commute by train to work. The question of how telecommunications helps these people when there is a disaster and sometimes people end up walking for many hours to return home.

- Takaya gave details of a system that make communications confirm family members' safety and tools that people can use to enable them to stay in the workplace.

Details of how the voicemail system works were requested:

- Takaya indicated that the system accepts voicemail from phone numbers within the disaster zone – marked by areas that are able to send. People outside the zone can then access the voicemail system externally. The system can handle 40M messages at peak capacity

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Day 3: 1st May 2008
Network Disaster Recovery

Keynote:	Dr Bob Nowill
Segment Chair:	Andy Slater

KEYNOTE

Bob opened by introducing security as having a fragile skin with a soft center. If not careful, undesirable things can happen, whether this is due to clumsiness leading to issues and loss of service as discussed earlier in the conference.

Some of the challenges faced by Service Providers in the increasingly global supply and delivery network were mentioned, such as zero-day attacks on IT infrastructure, phishing and wider problems such as SPAM.

The potential contribution of counterfeit network equipment to network resiliency and reliability was also mentioned.

The subject of assurance was broached with Bob stating two main aspects:

- How do the SP's gain the confidence of customers?
- How do SP's get assurance for home users?

Bob concluded by summarizing some of the major challenges ahead, for example; 2012 will be seen as a big test for CQR in the UK as it will be using NGN's and have globally sourced components.

END

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