

**'The fourth wave of innovation – the IP revolution'**

speech by

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Good afternoon ladies and gentlemen and welcome to the 21<sup>st</sup> Century Communications World Forum.

On behalf of BT, the official sponsors of this event, and IEC, the organisers, I'm delighted to welcome you to London and to introduce four days of very important discussion, reflection and debate for everyone involved in, or affected by, our industry.

I'm Paul Reynolds, chief executive of BT Wholesale and I'm the BT Board sponsor for our 21<sup>st</sup> century network programme.

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The communications industry finds itself at a defining moment today, at the start of the 21<sup>st</sup> century. Over the next four days, many experts from many fields in our industry will talk about different aspects of the future.

Issues like change, innovation and challenge will, I'm sure, be recurring themes. They're also themes I will touch on this afternoon.

Whether you represent a fixed line or mobile network operator, a service provider, an equipment or software vendor ... or indeed a user of the services our industry offers, there is much to discuss.

Recent developments in new technology, and the changing economics that underpin our industry, have combined to create new opportunities and new risks for all of us.

The rules of the game are changing.

How we react as an industry to these new economic and technical realities will create the foundations for the industry for decades to come, and it will help shape who succeeds and who fails in the future. It really is that important.

The 21<sup>st</sup> century brings the possibility of new businesses and new business models and the ability to create compelling new services for people to use. I'm sure it will also create winners and losers in the industry.

Ultimately, the opportunity of the 21<sup>st</sup> century is to bring about a step change in the way our industry creates and delivers services to customers and to transform the role we play at the heart of economies and societies around the world.

If we look back 100 years, to the beginning of the 20<sup>th</sup> century, everything in this room would be different.

The year would be 1905. The telephone would have been invented less than 30 years earlier and the audience would have come from the US and parts of mainland Europe.

There would be no one here from India, from the Far East, from Latin America. Getting here would have been difficult and there would be little possibility to keep in touch with your office, wherever that is. It was the halcyon days, the experimental days, of the telecommunications industry. It was a time of unbridled opportunity and hope. I think that is the common characteristic with where we are today. The old telegraph system would recently have been replaced by telephone operators. And telecommunications was a fixed line, single service industry ... and it was the preserve of the privileged.

Over the decades to come, we would all wonder at the waves of industry-changing innovation, like the advent of electro-mechanical switching and later, the arrival of electronics.

In the 1970s, we would witness the first steps towards the digital world. Nothing would be the same again. Each of these waves would transform the nature of the industry.

Today, we're witnessing the birth of a fourth wave, the IP revolution. Like the other waves before it, it will change everything. Much has already changed.

The traditional barriers of geography, of technology and difference have faded away. The landscape is decisively different.

The distinction between the fixed and mobile worlds has blurred and the division between traditional information technology and the network is rapidly eroding. Today we live, work and play in the digital networked economy.

True convergence, long talked about, is gaining rapid momentum. It's with us today and will become an increasing feature of our world in the 21<sup>st</sup> century. It's an exciting place ... and an interesting time ... to be in the communications industry.

None of us can stop the march of technological progress. The future became inevitable the day we learned how to fully digitise our industry.

Digitised voice, data and video can now be combined, changed, merged and manipulated on a single digital platform.

And if it is the ability to merge multiple information formats on a single platform that is driving the desire for convergence at a device level, the availability of carrier-class IP networks, multi-service networks and software-driven switching, are fuelling the agenda for fundamental change in our industry.

Everyone is looking for better productivity and greater efficiency. Technical innovation tries to meet this demand, as it has always done. Often it succeeds. Sometimes it misses the target and creates a different, unexpected demand. Think about the growth of text messaging or ring tone downloads - big revenue and profit generators for the mobile industries today, but not central elements of the mobile operators' strategic business plans when they were conceived.

The transmission of voice calls over IP is a reality today – and I have no doubt that it will replace narrowband switched traffic as the preferred medium of communications.

And make no mistake: it poses a very real threat to established telcos like BT and others. But it also offers new possibilities.

The future strategic direction for any incumbent operator is the key issue and we all have positives and negatives to consider.

Embracing the IP future requires large scale investment, the adoption of new skills, it poses a gargantuan operational challenge and will require new behaviours. The size of the financial, technical and operational challenge is enormous.

But in many ways, and as always in times of great change, the human challenge, I believe, is even greater.

My business, BT, has the size, scale and experience to manage major asset deployments. We have the investment strength to upgrade networks, to migrate customers to new platforms, and to exploit new opportunities.

But we also have downside – legacy can slow us down. Size can be a barrier. Bringing 100,000 people, millions of customers, a multitude of strategic partners, investors, Government, the regulator and policy makers with us is a huge body of work.

I will talk a little more about this later.

I said the economics that underpin our industry are changing. Let me give you a few examples.

In 1993, just a decade ago, AT&T carried over seven billion minutes of international traffic and billed over a dollar a minute for each. By 2003, it was carrying almost twice as many minutes for just 30 cents each.

Other operators like Sprint and MCI were also carrying international minutes and they were cheaper than AT&T.

In just 10 years, international traffic into and out of the United States had quadrupled, and here's the scary bit - total revenues fell from over \$11 billion to over \$8 billion. This represented in real terms, an 80 per cent reduction in revenue per minute ... in just 10 years.

In BT Wholesale, my business, regulatory and competitive pressures in the UK market is forcing me to manage a £250 million revenue decline each year. Other parts of BT, other operators in the UK, and operators around the world are witnessing similar margin and revenue reductions. Massive cost reductions or

significant new revenue growth have to be achieved just to keep our heads above water. It's hard work just to stand still. Our market is tough.

So if you're an equipment vendor in the audience, guess why operators like BT continually push for reduced equipment costs.

Telecommunications is an incredibly tough industry today and it's getting tougher every year.

In the last few weeks alone, AT&T and MCI, formerly Worldcom, two giants of the industry, have essentially gone away, consumed by SBC and Verizon respectively. You know, it's interesting. When Worldcom acquired MFS, a relative minnow providing communications services to customers in New York and parts of New Jersey in 1996, it paid \$14 billion.

That's just a little less than what SBC is paying for AT&T today. AT&T, the leviathan of the industry, sold in 2005 for a similar amount to what was paid for a small operator less than 10 years ago. MCI, what's left of a battered and bruised Worldcom, has been sold for just over \$5 billion, a third of what it paid for MFS. Size, scale and continuity are no guarantee of success in the future and what brought success in the past could cause downfall tomorrow. It's tough and it's getting tougher every year.

So what do you do in this harsh, uncertain economic climate?

Some operators around the world have decided to hunker down, strip investments back to maintenance levels; manage their businesses for cash; wait and see what happens.

At BT, we believe we need to be radical. We see real growth opportunities in new wave businesses, in ICT, in mobility and in broadband ... but we need to invest, we need to be radical to capitalise fully on the opportunities. BT's strategic response is 21CN, the 21<sup>st</sup> century network ... .. and we're going for it.

21CN is a multi-service IP network end to end with an integrated systems stack to support it. And we're deploying common capabilities as the basis for future product development.

Today, it takes an average of 18 months to bring a new product to market. We aim to reduce the lead time for new products to less than six months in 21CN.

Think about the beat rate of new product innovation.

For the first 80 years, telecommunications was a single service industry – the telephone.

20 years ago, the mobile phone came along, and there's more than a few of them around today.

10 years ago, the internet was new for most people. Now it's as central to our lives as television. Five years ago, broadband became the latest thing.

The life cycle for new technology is reducing all the time and, in this environment, reducing time to market is critical.

21CN will help us achieve this.

21CN is a converged world where customers' experiences are simple and complete, where customers have direct control over the way they choose, use and change the services they use, when they want to.

These are services that will continue to improve customers' quality of life, services that will help make their professional and personal lives easier and more productive.

Simplicity is the key.

21CN is a broadband and multimedia world where the customer can access any communications service from any device from anywhere – at home, in the office, on the move – all at increasing broadband speed.

It will offer a rich array of information and entertainment services to whatever device the customer chooses. And handsets will be a fixed line phone when you're at home or in the office and a mobile when you're somewhere else.

Services like televisual information and entertainment delivered to your PC or handheld device. More choice, more flexibility and greater freedom for people – both at work and at play.

The ability to personalise, to choose, to swap between the written and spoken word. The ability to communicate without boundaries and a world where everybody has access to modern communications. That's the vision.

BT's 21CN transformation will accelerate and enable the arrival of this new world. It is, I believe, the most complete, exciting and ambitious business transformation programme underway anywhere in the telecommunications world today. It's also a bit scary.

21CN is a next generation network infrastructure, but it's much more than that. We believe 21CN is the enabling infrastructure for growth. It's ambitious.

This means BT will be the first incumbent operator in the world to switch off the PSTN, we're going to pull the plugs – gone - to go all IP end to end. And it's actually happening today.

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So 21CN is exciting. It's RADICAL. And it's NOW. It's REAL.

Why are we doing it? 10 years ago, IT and communications were discrete worlds. But IP and the internet changed everything. Today, it's already difficult to differentiate between the two.

Think about broadband connections over DSL, about voice over IP accessed over the PC connection. The world has become irreversibly network centric. All electronic equipment today has the potential to be a network device – from your television or hi-fi to your camcorder or fridge.

We're seeing the beginnings of the wired home revolution, or more likely the wireless IP home revolution. The network will sit at the heart of society. It will be the nervous system that fuels the economy, government, business and human relationships in a way it never has before.

There will be a massive explosion of ambient intelligence in the next five or 10 years. Processor costs are plummeting – we're now talking about internet routers on a chip. Innovation and new service creation really will be curtailed only by the human imagination.

All of this is a vision for the market to exploit – the question is who wins?

The simple answer is whoever can create smart applications that the market wants and is willing to pay for. And an ICT-oriented, networking company like BT is well-placed to succeed, where others, maybe, are not. Not yet anyway.

Why is all this so important for a telecommunications company? At the most fundamental level, it's about staying in business in the longer term.

Convergence of technologies leads to convergence of industries. Traditional IT companies are well positioned to succeed in this exciting networked IT future too. If telcos like BT sit back and watch, they could be relegated to commodity players as best. 21CN is designed to embed the potential of the future IN the network.

Of course, being an IP platform based on open standards, 21CN will offer others the opportunity to compete too. Other operators will have access to the functionality and intelligence of BT's 21CN network.

21CN will enable anyone to build applications, not restricting creativity to the traditional players. In the IT-centric, IP communications world, it will be cheap to experiment ... and many will.

Think about the way telecommunications companies create services today. It's a one size fits all, take it or leave it, high volume business. Niche applications aren't profitable. If you're a large corporate customer, maybe you can employ a big enough IT department to customise the services on offer to match your actual requirements.

I'm not putting my industry down. We've achieved some fantastic things in telecommunications ... but what was good enough in the past won't be good enough in the future.

21CN will offer the ability to customise any aspect of the service at any level. Al Noor Ramji, chief executive of BT's OneIT operation, will talk in more detail here at the

Forum on how he and his team are building the systems to make it happen. Go along and listen if you can.

But like I said, in the IP world, it's cheap to experiment and many will. New people, new organisations and be businesses.

I think opening the ability to create applications to others will help bring about those elusive killer applications we all desire ... and I believe many will come from unexpected places. But all will need the power of the network to function and deliver the experience.

What's in it for large corporate customers? Large corporates are looking to communications to expand their customer base, to improve top and bottom line revenue growth, and to reduce costs. They need smart network applications to deliver.

They want to deploy integrated networked IT solutions all the way across their supply chains. But they want to be able to do this in a unique way. They may want to tailor network services ... easily, quickly and cheaply.

And they may not want to do everything themselves. Many will want to forget about the 'how' and focus on their servicing their customers.

What about smaller businesses? Think about competition in the business world. It's easier and cheaper to enter new markets with ubiquitous IP across the world. Small and medium size enterprises will have the ability to act like corporate businesses with scale. They will be able to project a global business presence and compete with bigger competitors.

Historically smaller businesses have been unable to enjoy the same level of customisation their bigger competitors have. All of this will change. The ability to customise, personalise and change service parameters in real time will be available to all.

It will create a new playing field where size won't guarantee longer term success. When was the last time you visited a travel agent to book a flight or a hotel room?

Think about the music industry and Napster, the online music sharing service. In the period before it was closed down in the late 1990s, it and its peers are said to have increased the consumption of bandwidth worldwide three fold.

The music industry resisted the digital change for a few years but is now finally conceding and is considering new business models, new ways to make money in the 21<sup>st</sup> century.

Think about music downloads and devices like Apples iPod. These new disruptive technologies have the power to revolutionise entire industries in months, not years. The iPod has sold, I believe, 10 million devices in the short time since it was launched. Revolutionary!

Faced with the threat of radical change in behaviour and habits ... businesses, both large and small, will look to harness the power of the network as a key to competitive advantage.

I'm aware that a lot of this sounds like a speech from the peak of the dot com bubble. But the truth is that many of the ideas dreamt up during the bubble are starting to become real.

Just because people confused the internet's ability for instantaneous communications with the ability to make money overnight doesn't make some of those ideas bad ideas.

For consumers, the 21<sup>st</sup> century promises a real revolution in choice and control over the way they buy and use communications services.

Exciting, radical stuff. 21<sup>st</sup> century stuff. The irony is that making things simple in our industry is a complicated task and a major challenge.

Initiatives like 21CN challenge large parts of our industry. It is part of the human challenge I mentioned earlier.

BT is uniquely taking a fully transparent, wholly inclusive approach to this new revolution. We've consulted widely with operators, vendors, customers and policy makers and we continue to do so. Arguably, our support of this event is part of that programme.

If I think about my customers, BT Wholesale's customers, this is critical for them, too. The 21<sup>st</sup> century affords us the opportunity to dispel much of the history we've amassed in telecommunications over the last 20 years. To ensure these organisations, these customers, have a voice and a forum to understand our plans in detail, we created Consult21.

I believe it is the largest voluntary industry consultation programme of its kind anywhere in the communications world today.

Consult21 is an industry platform that supports a range of working groups to work through in detail the plans for a transparent engagement with industry about what 21CN will mean for all of us.

It's an important element in addressing the human challenge.

Vendors, too, have an important part to play. Our industry has been characterised for too long by national operators working with national equipment vendors. Systems were propriety. One equipment vendor's kit wouldn't work with another's and so on.

No more.

It's time to change this. For many years, our IT colleagues have had the benefit of open systems, plug and play components. And 21CN will enable this in the communications industry, too.

Recognising the longer term experience and rewards on offer for those vendors that get to work closely with us to build 21CN, the world's leading hardware and software suppliers have agreed to provide vendor independent interworking and open standards. Again, radical objectives and radical change.

They've also given BT access to source code. Radical industry and behavioural change.

I absolutely believe that if we get it right, our industry will move together to a truly open future, breaking with the closed traditions of the past.

We're at an advanced stage of selecting our partners for 21CN after an intense and accelerated ITT process. There will be more news on this in the coming months. It's a great example of how we can win in the human challenge if we focus and bring people together, and take an open, inclusive approach. That's a key message for everyone here – openness and transparency are critical to success in the 21<sup>st</sup> century.

To conclude

We are facing the fourth major wave of innovation in our industry and it will require change on a massive scale. There are real opportunities ... and threats. However, we at BT believe the risk of doing nothing as the economic and technical sands move beneath our feet is even greater.

We're going for it and moving BT from an incumbent telephone company to a networked IT services and solutions company fit for the 21<sup>st</sup> century.

21CN will move BT decisively from a narrowband to a broadband company. It moves us from a product to a customer focus and away from selling capacity to selling solutions.

It's a gargantuan technical, logistical and operational test, but I believe BT has the capability to deliver.

Convergence is driving the need to change and will bring a wealth of new services and a radically better experience for those people and businesses that use communications services.

This isn't just about BT, or the telecommunications industry. It's about how we support our economies, our businesses. It's about helping to create better societies. It's about helping to create better lives for people.

Take 21CN. It's fundamental to the UK economy. 21CN will help our customers to complete, at home and in overseas markets.

It will help those tasked with attracting and retaining inward investment to UK plc and help make the UK a compelling business location of choice in the global marketplace.

For society, what we in the communications industry do really matters to everyone. The future will allow us in the industry to do more, to support people more, to help them learn more. It's not about call minutes anymore.

The change is already with us. There's no going back. The toothpaste is out of the tube.

In communications you innovate and invest ... or die.

Enjoy the event. Thank you for your attention.