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The Lycra system – it fits your business like a second skin

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Scalability is the buzz word for today, when there's no economic argument for a slack fit with extra resources to spare. It's common wisdom that scalability is vital for any cloud-ready enterprise capable of handling today's applications - what's less understood is that not all applications are capable of scaling by default

Ian Keene, Vice President, Gartner

If applications are to scale effectively, the right fit between business model and network architecture must be decided upon and built in from day one - and that makes it a key component of datacentre planning, along with thorough pre-testing before launch.
This debate, introduced and chaired by Ian Keene, Vice President, Gartner, at NetEvents EMEA Press Summit, Istanbul, will examine how to implement a more elastic and efficient infrastructure to deliver services at unmatched scale while minimizing total cost of ownership. How much can be designed into the network fabric, and how much can simply be plugged in as needed? Do we need to test a network if it really has been designed correctly? How far can the right network fabric reduce complexity without reducing flexibility.

Panellists: Amir Zoufonoun, CEO, Exalt Communications; Trevor Dearing, Head of Enterprise Marketing, EMEA, Juniper Networks; David Hill, VP EMEA, Spirent Communications; Camille Mendler, Vice President - Global Service Strategies, Yankee Group

Ian Keene
This is, I'm sure - the same goes for all of the panellists - the first time I've ever been asked to stand up and talk about Lycra, but there's a first for everything. I thought I could be quite cheeky and ask the panel a first question, 'what does Lycra mean to you', but I won't.
What is this about? We came to the conclusion that this debate is about network flexibility and the importance, or lack of importance, of network flexibility. Do networks have to be flexible? Aren't they anyway? What are the issues? Look at some of the things involved with problems, possibly, with inflexible networks.
So let's start off. Would anyone like to start off and say why they think having flexible networks, that are one size fits all that you can make bigger, but maybe
smaller too; why they think it's important in today's ICT. Would anyone like to start on that?

Panellist
As one of the key things, as we all know, things are very unpredictable and, traditionally, the talk has been about how does the network grow with your business.

More recently, how does the network shrink and fit to your business. But I think the key to this is how do we keep things simple, how do we keep the management of the network consistent and the security policies consistent, and the service that the network and that the systems deliver consistent, regardless of size.
So we don't want to get to the point where we have to change the structure, the components, radically in the network as it grows. We just need to be able to get to the point where, as the business grows or changes, everything just adapts and is easily managed in the way that things change. So that would be my view.

Camille Mendler
Ok, I'll give it another spin. I think this is about business models and how you purchase, as well as you manage, infrastructure. And I think there are actually no new ideas really and I think we have to go back to people like Toyota and their just-in-time manufacturing type of model and apply that to the industry of telecom and IT. And I think that's part of what we're talking about in terms of Lycra. That's my first thought.

Ian Keene
Just in time, right.

Camille Mendler
Just in time, just as needs.

Ian Keene
I know I've been missing out on something not wearing Lycra.
So we need scalable networks. Think of some ways you could do it, or maybe some examples. Do you any of you have examples of where not having scalability in the networks has been an economic disaster for companies?

Panellist
Don't look at me! I could probably give you a few examples, but I'm not sure that the perpetrators would be that excited by my giving you those examples.

Ian Keene
Well, you don't have to mention names.

Panellist
Yes, I think we've seen situations that have taken place, particular when it's involving Web traffic, for example. And people have implemented networks, they've implemented service systems to try and deal with Web traffic and they've totally under-estimated the amount of traffic that's going to hit that network, and the whole thing has come crashing about their ears. And that's caused economic disasters for people as well. So a bank launching a new service, the new service doesn't work, people click away and go somewhere else. So I think that's probably one of the prime examples that I would provide.

Ian Keene
Is it just not making things powerful enough or big enough?

David Hill
Well, Lycra is all about elasticity, so in that situation you've got an inelastic network and that's where the problems arise. So maybe this eventually leads onto how do you create elastic networks, and perhaps that's a question you're going to ask later on so I won't try and answer it now.

Ian Keene
No, go ahead, because if you've got an answer to that I think (multiple speakers).

David Hill
I don't have an answer, but I think there is technology that's moving forward that could provide some answers for some organisations. So this is kind of leading into virtualisation and Cloud Computing at the end of the day. And if that takes off, or when it takes off -- John would probably say if it takes off in the next 10 years or so.
But when that takes off, then you're going to have a whole bunch of organisations who are going to be using the same Cloud, the same virtual data centres etc, and those can be very elastic. Because the investment that's required by each individual is actually not that huge, but the opportunity to have substantial capacity there will allow them to be elastic and be able to grow up and down.
Some of the other challenges with inelastic networks; if you think about trying to grow a network when you're adding a whole bunch of new users, you've got all sorts of other problems. It's not just hardware and software; you've got licensing issues as well to try and figure out. Huge security challenges when you're bringing new people on the network and so on. So I think there is an opportunity to produce real elasticity, but you have to go to something like Cloud to do that.

Ian Keene
I knew Cloud would get in there somehow.

David Hill
We'll test it for you. We'll test it.

Ian Keene
Ok. Yes, that's right, you've got to test for scalability, I suppose.
Making networks more powerful to cover and cope with more applications and more users is one thing, but in today's modern businesses it's quite often the other way round and you want to scale down gracefully and not start with a network that was economic once, but when you scale down is entirely inefficient and far too expensive.
How should a business approach that?

Amir Zoufonoun
As you were talking about this, I was thinking. The ability to handle peak loads is really the issue. And if you have a network that can handle peak loads, and then everybody else throttles back within the network - the users, effectively, or businesses that are subscribing on the use of that network - then you can go toward a solution to the problem. And that implies network sharing.
And I think with all these private networks that are built out there, if people start collaborating and sharing their resources in the network which is going towards the Cloud -- but, as we know, Cloud is going to take years and years before we're there.
But I think a step toward that would be that these private networks effectively merge and then, in terms of usage, you can use-based models that can be used in order to handle the economics of the usage of the network, and also quality based. A lot of SLAs and QOS technologies can be utilised much, much better in this sense to help with this sharing environment. But we're not there right now.
Everybody builds their own networks. They are all isolated, effectively, so it's extremely inefficient and nobody can really handle peak loads. So if you build a
bigger network and then share it you effectively have a little bit of an oversubscription model built into this thing to handle peak loads for every individual on the network.

Ian Keene
Network sharing might sound a great idea, but it's actually persuading people to do it.
And a good example, Amir, in your part of the business is on radio networks backhaul, where the idea of network sharing has been around for some time, it can make economic sense and some service providers do it now. But, then, how can you share a network and be competitive and be better than the competition? And, of course, for your company, then, it means that you sell less backhaul, because there is only one radio network and not three or four.
So in practical terms do you see more service providers, for a start, sharing? Do you actually see that happening in the future, or really is the need to be competitive going to compel them to build their own networks?

Amir Zoufonoun
We see it through a different channel, a new channel, which is emerging carriers coming into the space and effectively providing a very fat pipe and then having technology on the back end of that to be able to parse out bandwidth to different people, based on their usage or SLAs or whatever. So it's happening in a different way. None of the actual operators are inclined to share their own networks, but if somebody else comes in - a third party comes in - then they are more inclined to do so.

Camille Mendler
I think there are a few other examples there. Out in Poland, Orange and Play are going to be building an LTE network together and they're going to re-sell that wholesale bandwidth to others. And up in The Nordics there is Net4Mobility, which is also a joint venture between Tele2 and TeliaSonera, and that also is network sharing.
But I think the key issue is how you build and pay for networking equipment is changing, and the equipment vendors have got to change as well.
These were huge structured financing projects, depreciated over 10, 15 or more years.
And I think what we need to have right now is models that change the CapEx for the operator, so that it's pay as you grow, it is maybe shared risk reward in the rollout of the network. And that's a fundamentally different way of thinking about building out networks. Because what is the most important asset for the operator? Is it the network? Is the brand? I think those are the issues that people are talking about - what's core and what's non-core. Not everyone's coming up with the same answer, I think.

Panellist
I would say that getting operators and suppliers, and getting suppliers to share in some of the profit and so on and so forth, that's been done before. And I can remember in the days of Nortel, when it was a significant-sized business, they tried that and they got really badly burned. So I suspect that a lot of the operators are not that keen on pay as you grow or profit share, or whatever.

Camille Mendler
I've got to disagree, because I've spoken to many operators who expect that type of configuration, particularly when they're launching new services for which they don't know what the demand is going to be. Many tier ones are looking at this as a way to de-risk new service launch.

Panellist
I don't disagree that that's what the operators want.

Panellist
As a vendor, as a manufacturer, the operators may love that model of sharing the risk with the vendor. To be honest, as a vendor, why should we share in that risk?
Where's the reward?

Camille Mendler
The typical deal is 20% up-front CapEx and then the rest over a pay-as-you-grow type of structure. And I know vendors who will do that. Ericsson will do that, Alcatel Lucent will do that, [Cisco] will do that.

Panellist
But where is the benefit?

Camille Mendler
The benefit is a long-term engagement that's not just hardware, but also annuity services, management services. And look at people like Nokia Siemens Networks, whose revenues are 45% services today, Ericsson about 40%, Alcatel Lucent about 25%. The whole business model for the equipment vendors is changing. If you're not in services today, I wonder if you'll be around tomorrow.

Panellist
So the interesting piece on that is that a lot of that -- yes, you're right, Nokia Siemens do services and fundamentally they are our route to market for those operators. So they are wrapping their services around that as a pure manufacturer focused in the piece of the market that we do. And, especially, also with the enterprise, because we're not in that full services business that our re-sellers are, then putting our products in a position where the failure of an organisation to manage their own business is not great for us. It's good for our partners who are delivering the services. It's not great for us as a pure-play manufacturer.

Ian Keene
So maybe you've got the best of both worlds. You get all of the up-front payment and let someone else take the risk.

Camille Mendler
Of course, I'm teasing him a little bit here. But I can see the reality where an operator is going to engage with, maybe they were called equipment vendors, but what they're buying is services that might include a bit of hardware that might be that equipment vendors' hardware and may be somebody else's. And that's fair enough. That's a rich enough opportunity.

Panellist
But equally, and swinging it round to the enterprise, you do get that same risk. We were talking of an un-named company, where they negotiated a per-se contract with a supplier for the LAN infrastructure and the services, and the company shrank hugely, but they were still faced with that bill. So you end up having to renegotiate some of these contracts. So, actually, a lot of this Lycra, a lot of this flexibility is in the contract as much as it is in the technology.

Ian Keene
When I first looked at this debate I was thinking, hang on, how can you make networking equipment more flexible, but, you're right, you can certainly make
contracts more flexible and maybe that's the answer.
From a service provider, router and switch manufacturer like Juniper what could you build into your products to make them more flexible than they are today? Is there something missing from the technology side?

Trevor Dearing
I think one of the key things is that scalability, so that you're delivering a consistent product across

the entire size of the range, so people don't have to do things differently at different points in the network. So I think that's one thing. And that just gives you a consistency of management approach, so a consistent management interface as well in all of these areas.
And I think that, fundamentally, if you can do that, then it's easy to grow. The challenge comes when you get smaller. Because, fundamentally, do you give that kit back, can you re-sell it, can you part exchange it, can you do those sorts of things? So I think it does come down to some of the commercial issues when you're on the downward slope. The upward slope is all about consistent functionalities and pay-asyou- grow type financing.

Camille Mendler
Maybe we won't be buying kit any more. Maybe we'll just lease. Maybe the telcos will lease as well; lease their entire network.

Trevor Dearing
I think a lot of them do. We do a lot of work with financing organisations for both enterprise and service provider and I think that becomes a much stronger model. And especially when we were talking about virtual operators and shared resources, if you think about it, service providers deliver shared resources and shared services to enterprise business anyway. So NPLS, VPLS, they're all shared services. So it's actually not that difficult. If you are the organisation that owns a bundle of fibre – we went through a model a few years ago of leasing that fibre to virtual operators.

Camille Mendler
I think it'll make it really difficult for the financial community to assess the real assets of a particular telco. What's the tangible versus the intangible assets? What is really of great value? Is it the brand? I don't know.

Ian Keene
Scalable experts - can organisations, whether it's a service provider or an enterprise, really run the same policies on a large network as they could a small, and vice versa?
Particularly policies regarding security and things like that. Generally you do things differently for a branch, obviously, than you do for a company headquarters. So how can people have the same solid policies, in terms of the network and security, and allow scalability? Surely that's very difficult.

David Hill
Isn't that the issue that we're trying to face with inelastic networks? Can you do it? I don't know the answer to that question. But should we be looking at something completely different? And I think this Lycra session was aiming towards, is the solution going to be Cloud Computing and virtualisation or can we actually cobble together something in a different way contractually, or using multiple people on the same network etc? I still think that if you look 10 years out, then probably virtualisation and Cloud certainly is where the small and medium enterprises are going to be. They're all going to be sharing that resource.
And, frankly, elasticity is really required by those companies who have no idea how fast they're going to grow and, hopefully, most of them will grow, but some of them will go out of business. If they don't own network assets, actually, that's quite a benefit. If those are owned by the Cloud, a public Cloud of some description, then -- maybe even it's outsourced from a service provider who says; here's a Cloud solution that we're going to provide you; we are now a purveyor of software as a service, or whatever it happens to be, so we can do everything; we can do all the applications; we can host applications for you; we can provide all your storage capability; we can scale to whatever scale you want to grow to. So maybe that's the direction it needs to go in.

Camille Mendler
That's the longer term, but in the short term what everyone's worried about is that mobile data explosion which is driving that need for flexibility, because of that massive uncertainty.
And I was talking to an operator the other day who said, we just switched on our 3G network and our mobile data increased 20 times in nine months. That's just
extraordinary. What do you do about that? They have no predictive capability about consumer usage.

David Hill
No, that's true. Here, I'll stick my testing hat back on. I think you can understand the dynamics of your own network if you do enough testing in the first place to see where your limits are. Then, as you start to approach them, you can try and do something about it. But that's kind of the 'let's see what we can get do and then we'll work on it from there'. It's not a solution for the future in reality.

Ian Keene
Isn't it a matter of you fixing one bottleneck and then you finding another one, so it's very hard. Talking about cellular networks, you fix a bottleneck here, ok then, then you find a bottleneck somewhere else, so maybe it's the radio are network. So you put in more cell sites, for example, or go to something like femtocells; they are not something that I personally believe is going to explode. Then you find that it's the backhaul that's the problem, or then you find, no, it's my data centre now. And it's the same whether it's something like a cellular service provider or, perhaps, even just a large enterprise; you're just bumbling along; you're fixing problems all the time; you're fixing bottlenecks. And, guess what, you just find another one. So it's stop/start, fix problems, more so than graceful elasticity.

Camille Mendler
So why run your entire business by doing that troubleshooting? Shouldn't you have the headroom to develop compelling new services, increase the ARPU? Just outsource the hell out of the network to some equipment vendor or some integrator and the telco just focuses on keeping the customer happy.

Trevor Dearing
But I think, equally, from the enterprise perspective it's the planning for Christmas. Most telephone networks in most countries don't have the capacity to support Christmas Day, whereas, a lot of enterprise networks are built so that they will take Christmas Day several times over. But the other resources around it are not necessarily there. We talk about elastic networking. Some of the services offered by people like Amazon, where you can effectively borrow some [compute] resource or borrow some storage, or things like this, allow you that sort of peak. So even if you build your own data centre with your own pieces in it, that unexpected peak you can take resources from elsewhere.
But coming back to the question about, if we've got some compute over there and some storage there, and we're taking some network from two or three service providers, and we've outsourced the branch and we have the data centre, how do we deploy a security policy across that lot; that's where the challenge comes. And that's really where the industry has to go towards standardisation and much more openness in the way it works. So if you're going to be able to provision security and networking across multiple service providers and multiple resources there has to be much more standardisation and openness in the way things are done.

Ian Keene
Ok, more standards needed, then? Would you all agree, or do you not think that
we've got enough as it is? There are too many, perhaps.

David Hill
I love standards! The more standards there are the more testing is required, so, for me, they're great.

Ian Keene
We started off with was there a need for elastic networks, and I think the panel agree that there is going to increasingly be a need. Part of solution to elasticity, maybe more than technology, is in negotiated contracts, where people have to look maybe coming to agreements in contracts in a different way than they have in the past. Do you all agree with that as a conclusion?
And then this Cloud thing comes into it too, and that's all about elasticity. So do you see a future when, when the Cloud is established -- let's assume for one moment that it does, at some point in time, get established as a viable method of processing applications. Do you think a likely scenario is that enterprises will, basically, offload the peak stuff and put some of the non-essential, non-critical peak-type applications in the Cloud and keep their own data centres the way that they have done? Or maybe introduce virtualisation [or] something being more flexible? The Cloud is going to be a top-up service for people and little more than that.

Camille Mendler
I think, for some, it'll be more than that. But that type of Cloud bursting service absolutely is highly logical and I know some enterprises are already looking at that.
Again, there are no new ideas. How different is that from, in the old connectivity today, frame relay in some of the committed information rates and being to burst beyond that, to go back to a very mundane example?

Trevor Dearing
I think there are two sides of this. There is the enterprise. If we look at an investment bank, they're not going to put their trading floor or anything like that in the Cloud because of latency issues and that's their business. But I think they'll push their email and other things in there. So what you're saying there is absolutely right.
I think the other model is where organisations build a business around having resources in the Cloud. So if we were to start a business -- one of my favourites is basically an organisation that provides an online ordering service for takeaway restaurants in towns. So a lot of restaurants - Chinese and Indian-type restaurants - don't have websites and things like this. So a third party running an application in the Cloud is providing a service for those companies, for people to be able to go online and order the food. So there is a new generation of people who are building business opportunities around what they can achieve with the Cloud. So there's almost no investment up front for them, except for the good idea.

Camille Mendler
I can think of an example right now. I've just been doing a lot of case studies with enterprises in Asia; a Singaporean firm that does computer-based training. And you think, how uninteresting and not very new, but the type of computer-based training that they do is actually 3D environments. And they basically leverage platform as a service and, effectively, for every one of their training clients they will create an entire customised environment for these people to be trained, to walk in looking at the retail store front.
And they're doing that by leveraging infrastructure as a service, and they leverage their own platform on top of that to customise for their training clients these types of environments. Would not have existed, wouldn't have the horsepower, the computing power to have that business and, yet, that has now grown in under a year to be in three different countries in Asia, and going great guns. And that's a whole new business enabled by the Cloud.

Ian Keene
So we're going to see even more equipment, even more data centres than we do now, more networking equipment, but it's the contract that's spread over and outsourcing is going to supply some of the non-critical applications. So it's not gloom and doom, then, would you agree, for the equipment manufacturers, because you're probably still going to sell even more?

Camille Mendler
I'm just not sure we're going to call them equipment manufacturers any more.

Trevor Dearing
This is a weird thing to say, but I think we're actually going to see less of each type of thing. That may sound awful and I've probably just pushed the share price over the -- so let me explain that.
One of the things that we're seeing a lot of in the network at the moment is, we talk about simplification, we talk about consistency and scalability. And as part of that, if you think about a data centre that was full of switches and firewalls and boxes, and you'd say that rack is that application and there's the firewall and all the switches that deal with that. What we're seeing now is, as we move to the fabric in a data centre, so the completely flat environment where there is a lot more 10Gb as opposed to 1Gb – I know there's a discussion about 40Gb and 100Gb after that.
But the effect of that is that you actually reduce the number of physical components, so we'll actually make fewer devices that go in there. And the same with the fact of the consolidation of security and WAN acceleration and Voice gateways and things into components. So what you'll find is fewer components or boxes which will actually be platforms to deliver services from than necessarily physical devices in the network. So I think the costs and the revenues will maintain. I think there will just be a lot less physical components in each network.

Ian Keene
Fewer things to test.

Trevor Dearing
[To test on them].

David Hill
Exactly, so virtualised testing again. You're back into fewer boxes but, still, you've got to have the capability to do the testing.

Ian Keene
Any questions from the audience on this?

Luke Collins
Luke Collins from Engineering and Technology in the UK. Would anybody care to comment on whether hardware design will have to change if equipment vendors end up offering a service instead?

Camille Mendler
Well, many equipment vendors are already externalising a lot of design in any case.
They're externalising lots of the software that they need to run some of their hardware.
They already externalise quite a lot of components anyway, so I'm not sure that that's necessarily anything new. Already some of that (inaudible).

David Hill
I guess it depends on which route the vendor takes; whether they go down the route of using the

huge horsepower that people like Intel can generate, or whether they put it in FPGAs themselves and try and drive the business that way. I still think you're going to end up with significant amounts of hardware design continuing, because you can't do without some form of box somewhere to do something.

Camille Mendler
That was one of the big questions when Nortel did the Flextronics deals, because they externalised a lot of that design and, well, where is Nortel today?

David Hill
But the design still has to happen somewhere.

Trevor Dearing
To be honest, we've been changing and progressing that over the last few years.
We've taken a lot of the basic functions and put those in silicone, and that's the horsepower, that's the packet forwarding bits; that's those sorts of areas. The services pieces are then sitting on, fundamentally, processor cards that we're taking from a number of manufacturers.
But you're right in the fact that we've consolidated a lot of our products over time and we're striving towards a much more standardised platform that allows us to share components and things between products. So it does change that. We have ASICS that we use in a number of our products because they're doing, fundamentally, the same thing at various points. So, yes, the hardware design will change as the network becomes a platform.

Luke Collins
I was actually going to have a shot. I was going to follow up myself on that last point.
Do we end up in a world where everything is either silicone or services? Is that where the elasticity comes in, that Intel, Qualcomm and co rule the hardware world, with a bit of material science thrown in with clever screens for a phone? And then we have various flavours of services from, whether it's telcos or managed service providers, or anyone else, sitting on top of that.

David Hill
So is that your prediction for the next 10 years, then?

Luke Collins
I'll have a think about it.

Camille Mendler
And who generates and owns the power? The power is all of that. And I think of people like Google, who are now wholesale electricity traders, generating their own electricity from their own power stations. So I think things are changing, aren't they?

Trevor Dearing
But if you think about what a lot of these devices do, think about the fundamental part of a switch or a router, you have a piece that is doing forwarding at some level and then you have a component that is the control. So if you think of a router network, you're running [dia strict] calculations and OSPF right across a number of devices, but at the base layer they're doing the same thing. So why do you need to run that, execute that process multiple times? Why not, if it's the same, take it out of that
component completely, just have those products forwarding packets and doing the things that they do, but reduce the number of times that you're actually doing the processing and the calculation and the control? I think that's going to be a big change that we'll see.

Ian Keene
Ok, I think it's answered all the questions I had and, hopefully, what the audience had.
So I'd like to thank my panel.