FINAL

Round Table Session III
Business defined cloud networking

Chaired by:

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Peter Lam	Senior Director, Systems Engineering, Asia Pacific, Infinera
Dan Pitt	Executive Director, Open Networking Foundation

Manek Dubash

Dan's here and Derrick please, to the stage. Welcome to the stage. Thank you very much. So I've got a small handful of slides once more to present, this time from IDC. Much of this will overlap with what I said on the last panel in terms of the number of people who are either considering or already investing in public or private cloud, the fact that people are going to do more to increase their cloud spending, 34% over the next 24 months, according to IDC. And businesses will spend $122b on public cloud IT services in 2018. Wow! And there'll be a lot more money spent here in commercial apps, infrastructure, spending growing at 20% a year reaching $65b in 2017. And by 2020 more than 40% of all servers will be in service providers data centres up from 19% in 2014, now that's quite a jump but still note that 60% will be still in the private domain.

So in terms of IT sourcing how does cloud figure? What's interesting here is, I think, that the external cloud at the moment, according to IDC's figures, is 31.4% which will be rising to 40.8% in 24 months with a big growth in virtual private cloud and actually a decline in public cloud, but certainly a growth in general hybrid cloud as we saw on the last set of numbers.

IDC draw an analogy with what's happening now between the computing eras, the first era of computing networking if you like, the old hubs, SNA, Ethernet Token Ring days, the period when we sort of moved up the stack towards the dominance of IP, PC client service, predominance of north/south traffic and now, of course, we are seeing the data centres being re-architected with east/west traffic fabrics, virtual workloads and so on.

So in terms of the infrastructure opportunity lots of big numbers basically, non-cloud, spending staying fairly flat and public and private cloud going up according to IDC, and segmentation hyperscale interestingly going up quite a lot but perhaps not quite as much as you might have thought, but other cloud service provision going up in a fairly chunky way, traditional IT staying pretty much flat.

And I think there is one or two more here. Yes. So in terms of the way that data centre networking is changing clearly again it's driven by the need for east/west traffic by fabrics and so on. We are seeing traditional networking giving way to SDN and the fact that SND is leveraging existing and emerging industry protocols, and the market due to reach $8b in 2018.

So I think that's the end of my -- no, no what's driving it, yes, the need for the network to have more agility. I think we saw that in the previous presentation. And the need to, increase ability to deliver new applications, better programmability of the network for operational efficiency are the drivers for SDN.

And now I'd like to invite Derrick to come and tell us more about aligning applications and connectivity to enable fast and safe cloud computing. Derrick?

Derrick Loi

Thank you, a very good morning. My name is Derrick Loi. I head up the data centre and cloud business for Orange Business Services for APAC. I joined Orange just about six months ago. Previously I was heading the Cloud Platform Group for Citrix Systems for about two years. And before that I was with SingTel to build the government cloud or the G-Cloud as they called it.

So today, I would like to quickly share with you what Orange has done around aligning the applications and the workloads that are really being consumed in a cloud manner and tying that to the relevant connectivity services to ensure a safe and fast computing experience. So just a quick introduction to Orange Cloud for Business, OCB, in short, the name is a little bit misleading, because other than cloud services a huge part of our revenue still comes from the traditional data centre services, colo hosting, managed DR, managed backup so on and so forth. So that forms the key base layer of our portfolio.

And on top of that obviously we have build all the various [flavours] of cloud services, be it from private cloud to virtual private clouds. Recently, the cloud management platform is where we are seeing a lot of traction where we actually give enterprise customers the ability to deploy hybrid cloud or multi-cloud. In Orange, we actually prefer to call it multi-cloud because we acknowledge that increasingly, customers do not just look at having two clouds (both public and private), they are increasingly looking at having public, virtual private and private. And in some instances, we actually have a lot of large global MNCs looking at deploying multi-private within their global infrastructure. So this is where we eventually developed our cloud management platform to enable both hybrid and multi-cloud capability.

And on top of that would be the value-added services such as big data analytics, managed VDI and managed workspace services. And then last but not least, to complete the picture, will be the suite of professional services, migration and consulting services in order to enable customers to better plan for their cloud migration, better implement their cloud migration and eventually to also ensure life cycle management and support as they continuously enhance and improve their cloud deployment.

From the organisation perspective, we are actually a vertical business unit within Orange, set up to focus on our most important growth area which is data centre and cloud. We see data centre and cloud as the core that will enable the digital transformation for our customers. Within this group, there is close to about 3,000 employees, today we have a very diverse portfolio of services, we managed close to 40,000 servers and we have around 150 large MNC customers globally.

So let me just quickly walk through with you the portfolio that Orange Business Services have in terms of data centre and cloud. Starting from the very left, like mentioned, this is the base offering that we have – the traditional co-loc, Data Centre IT and hosting. Then moving onto the right would be the virtual private cloud portfolio, which we brand flexible computing. It is an on premise offering within the service provider's data centre, and it's a multi-tenanted platform.

Then moving further onto the right would be our private cloud solutions. And this is where we have three flavours, one would be based on an integrated solution from some of the familiar Data Centre architectural vendors, on which we built a private cloud based on that. The second flavour we have is based on OpenStack. And the last flavour that we have which is the latest addition, is based on the converged infrastructure, or we call it Cloud in a box appliance, to build a private cloud.

Then if I were to move onto the extreme right, the latest addition to the family is [like what] I mentioned earlier, the hybrid / multi cloud offering. we do recognise that customers are telling us that they are not comfortable with just one cloud, that no one cloud is purpose fit for me. Customers' feedback are: "What if I want a way to actually automate the provisioning of the workloads, VMs and the applications into different cloud destinations and during the course of operations, what if I want to move workloads between clouds? can I do that?" Hence, that's exactly what we have

done. We have launched our multi-cloud and hybrid cloud capability that extends from our private cloud and virtual private cloud.

So therefore to sum up: for Orange Cloud for Business, we position ourselves as the heart in enabling the digital transformation for our large global MNC customers. And the first focus that we have this year is about extending the flexibility of fprivate cloud solutions to our customers, because we understand that there are customers, especially the large MNCs, who still prefer a preferred dedicated architecture that's customised to their needs, to their workflow, to their very specialised applications and last but not least even to their SLA requirements.

Secondly, they have different silos of data centres around the world due to mergers, acquisitions. They might have acquired disparate data centre estates, IT estates, etc This is where they need a way to consolidate them to enable improved end to end visibility, compliance and facilitate consolidated procurement, while still retaining some degree of their preferred architecture and design, but yet outsource the entire infrastructure management consistently to a single provider. So that's the private cloud solution. That's the first key focus for us this year.

The second key focus for us this year is really the multi-cloud, the ability for customers to have the best of breed cloud providers or cloud services but consolidated under a single cloud brokerage and consistent unified user experience.

So let me now share with you how Orange is actually bridging the divide between the applications and the workload that is the centre piece of any cloud deployment, and the network that is needed to run and transport the workload that is residing in the cloud.

Let's us first take a look, take a step back to understand why is there a need for hybrid cloud or multi-cloud? For all large MNCs, regardless of whether they are using AWS or Azure, whether they are using a virtual private cloud, whether they are using perhaps a customised private cloud which they have built using OpenStack, for example, or it could be a FlexPod based private cloud that we have customised for them, and then last but not least, in certain countries they might have affiliation for certain local providers. Regardless of the various permutations mentioned above, all the IT administrators of large MNCs, all the CIOs of large MNCs, would have three common requirements:

Firstly, they need to have the ability for their end users, for their internal tenants to have a Central Authentication Service (CAS) based single sign on that is integrated with their active directory. Regardless of the various clouds providers used, they will prefer their tenants to have a CAS based single sign on that's integrated with their active directory, so that they do not have multiple login portals with different sign-on credentials for different cloud profiles.

Secondly, the ability to have end-to-end chargeback/show-back, the ability to track and allocate the usage cost to each user, to each department which will facilitate the budgeting cycle for next year. And then last but not least, end-to-end performance reporting - the ability to actually understand where the possible bottleneck lies, where

is the problem and then resolve that. And all this ideally should be from a single pane of glass so that you do not have the swivel chair effect whereby you have to log in to one console to report a fault, troubleshoot on a public cloud service, go into the Orange private cloud portal to check on the performance of Orange private cloud services there and then go into another console to do so for another cloud provider. So we want to avoid that swivel chair effect. And this is where ideally it should come from a single pane of glass.

Cloud computing is commonly categorized into infrastructure as a service, platform as a service and software as a service, but we all understand that cloud computing essentially carries applications and the workload that they deploy. And all these applications and workloads have to run across internet pipes, intranet bandwidth connecting between the data centres and users. And this is where Orange provides our proven managed MPLS IP VPN network that will now serve to connect between the various clouds, so that your data is able to move between the clouds securely and assured.

So what Orange has done is that we understand that in the deployment of multi-cloud or in the journey towards hybrid cloud and multi-cloud, there is that simplicity that's needed, there is a need for the consolidation of the administration functions that I mentioned earlier that's needed. And most important how do we map the application and the whole workload centric approach that cloud computing is about with the required underlying networking to support the transport of the workload.

What Orange has done is that we have actually come up with our multi-cloud orchestration platform, in short MCOP, and the unique value proposition of this platform is that it actually now serves as a single console to automate the provisioning of applications, workloads and VMs across multiple cloud profiles. And with this platform you can now also move workloads between clouds. For example, a non-mission-critical application initially could be hosted on AWS or any public cloud providers. But as it becomes mission-critical, you need to have a secure and automated manner to actually now transport the workload back into a private cloud or a virtual private cloud. And this is part of the capabilities that we provide.

This slide is a snapshot of the user interface. Once the user logs on, he's able to see this user interface that he can interact with. At the launch button, which you see here, he's now able to launch an application or an infrastructure. Now when you launch an infrastructure, it's essentially IaaS. And he can launch the VM into either/any of these cloud profiles shown here. All the user needs is an end user contract with the relevant cloud service provider.

So take for example if they have a contract with AWS, because the platform that we have here, which is puppet-based and it has already been fully integrated with the API from AWS EC2. So what will happen is that the rate-card of this particular user will be automatically populated into our platform so that when they decide to deploy a VM into AWS, the selected service option as per the rate-card of this particular user or customer will be available in the drop-down menu where he can choose his preferred server lifetime, server flavour, AMI, so on and so forth.

The other capability from the launch pad is the ability to launch applications. And this is where I mentioned in the earlier roundtable on IOT that the Orange mCOP also has the capability to host applications and to enable an enterprise to build a vertical marketplace. Now with this marketplace what it means is that the moment the end user signs on and he launches an application, the application will be launched automatically together with the IaaS and the system packages that's needed to run the application. And you can actually define the policy that maps the application to the profile of the cloud provider from which the IaaS is procured, from either a public cloud or a private cloud in order to run the application. So it becomes a single, one-stop automated provisioning of the applications and the underlying infrastructure.

I've spent a bit of time talking about the application centric, the workload centric, the VM centric approach towards multi-cloud or hybrid cloud. But as I said earlier, hybrid cloud or multi-cloud deployment would not be secure and user experience would not be satisfactory if you do not have the underlying network that carries the workloads to compliment the provisioning and the experience of multi-cloud. And this is where we do understand that today, there is a disconnect between the virtual private network that's employed by enterprises together with the various cloud service providers that you use.

Given that context, how do we correlate the performance and the response time between the various cloud providers across diverse networks? Where is the basis for the SLA that Orange or any of the service providers provide you? And how does that match or correlate with the third party cloud services that you are using? So what we have done is that from a networking perspective, we have come up with an offer called Business VPN Galerie. It is an extension from our Business VPN which is our managed MPLS IPVPN. And what we have done is that we have now incorporated the cloud services into the enterprise VPN so that you can now enjoy an end-to-end SLA even when you are using third party cloud services.

How it works is that for all the third party cloud services, we have actually established a local cross-connect at the nearest POP between our customer virtual router from our MPLS IPVPN, with the third party cloud services edge router. And in so doing, all the customer have to do now is to subscribe to a business VPN Galerie port on our PE router. And from there, the relevant virtual circuits or the VLANs will be established to the third party cloud service provider.

Essentially the BVPN Galerie is a secure MPLS VRF that's established within our Business VPN, which is our MPLS enterprise VPN services to our enterprise customer. And for each of these virtual connections, the necessary security services, be it the firewall, the access control policies, the data loss prevention on a per VC basis will be extended to the customers who are now subscribing to the third party cloud services via the Business VPN Galerie services that will connect back to their enterprise VPN.

The key point I want to drive here is that now, you truly have an end-to-end manageability, even down to the connectivity to the third party cloud service providers. From an SLA perspective, we provide a four hours guaranteed time to

repair. And last but not least, from a performance and from a security perspective, your cloud traffic is now going on-net and you will enjoy all the benefits of on-net experience that comes with it.

This slide is an example of what we have done with Azure, which I think is also mentioned by some of the other panellists earlier, where we have established the Business VPN Galerie connection from the customer virtual router to the Microsoft ExpressRoute Edge if the customer wants to subscribe to Microsoft/Azure as the 3rd party public cloud service.

This is my last slide. To recap, the mCOP or the multi-cloud orchestration platform is the console which we have provided to our users the ability to now automate the provisioning of applications and VMs across multiple clouds that is policy-driven, so that you can define what applications go into which cloud. It is integrated via puppet with the end users' service flow or approval workflow, and it is coming more from the application, workload and the VM centric approach.

With Business VPN Galerie, we have also addressed the underlying networking approach to ensure that cloud services can be delivered with the same SLA that you expect from your MPLS IPVPN. But what has been missing is how do we connect the two. How do we connect from an application and workload perspective to the underlying networking perspective to ensure that the multi-cloud provisioning and experience is actually seamless? What we have done at Orange is that we have actually now integrated some of the necessary SDN partners' API into our mCOP, into our multi-cloud orchestration platform. On this slide, we will illustrate on a step by step perspective how you will actually achieve that.

First, for any enterprise customers, we will first register the networking device that they use to connect to their third party cloud. So, for example, if they want to have a connectivity to Azure, there will be a customer virtual router that's dedicated to Azure, there will be one that's dedicated to, for example, AWS. Next, we will register the cloud location that goes with that virtual router. So, for example, if they have a user contract with Azure or with AWS, then that cloud location and that cloud profile will be associated with that virtual router, and then the customer's cloud rate-card will be auto-populated into our multi-cloud orchestration platform. Then, last but not least, we will obviously need to configure the necessary class of service and connectivity attributes on the network itself, between the customer's virtual router and the third party cloud service providers' edge.

Once that is done, on an ongoing basis, the IT administrator can on-board new users, they can create any cloud profile for their users. And all they have to do now is to associate the relevant network or SDN profile with that particular cloud profile that the user is going to. And all this will be configured via the same console, the multi-cloud orchestration platform that I spoke about, thereby giving the IT administrator a seamless experience when delivering and provisioning a multi-cloud.

That's all I have for today. Thank you so much for your kind attention.

Manek Dubash

Okay, I'd like to pick up just one or two points from that presentation, particularly the issue of cloud brokerage. It's quite interesting to me that a service provider is also becoming a cloud broker. Is that sort of a trend that you're seeing or are we seeing more the growth of third party cloud brokers? Who wants to talk about that? Anyone?

Jurek Krasnodebski

Actually I'll start on that, simply because we've got parallel offer, we do the same.

Manek Dubash

Do you want to come and make a presentation?

Jurek Krasnodebski

No. I think we had a very good presentation, and all the points were discussed. But that's what's happening, because it's purely driven by client and what client wants. They've got their workload, they've got a workload in their data centres, they've got a workload part public cloud, they would like to have workload somewhere else. And before [as] big national multinationals who have to respond to it one way of managing, one way of provisioning with security. And the security becomes for us sort of a bit of a differentiator because we do provide security for the entire company's parameters and we run it 24 hours a day using big data machine learning and people in different time zones.

But we not only do this we also ensure that the service and the transition to this [new] environment is provided. So per ce we will be seeing more and more that we will be competing on the same footing. And that's why I believe your slide was showing that surprisingly public cloud usage will be dropping and the sort of hybrid will be growing. It's simply because this is what people wants and this is where business is driving.

And ultimately if you think about this every business wants the same. Could I have please less cost? Thank you very much. Or I would like to also have more benefits. Or by the way remove all my risks. And I would like to be extremely agile. Oh and I would like to have all my users extremely happy. Those five parameters drive everything what client does. And [the four] if you think about it this is why offers from multiple vendors like BT or Orange are similar, no surprise.

Manek Dubash

 [Inaudible]

Derrick Loi

I think if I could perhaps add my comments,-- the line is blurring in terms of cloud brokerage between traditional network service providers, managed service providers who are cross stepping into the realms of some of the application BPO service providers like Wipro, Infosys and so on and so forth. In cloud brokerage, there are

essentially three business models. There is cloud federation, there is cloud aggregation and there is true cloud integration - the three models for cloud brokerage.

What Orange has attempted to do is just cloud aggregation, because we clearly understand that at the end of the day, we do not want to compete with our partners, the likes of Infosys and Wipro, who specialise in application development and business process outsourcing and management. What we want to do is actually provide the global DC footprint, the cloud platform and the multi-cloud orchestration capabilities from an integrated infrastructure and networking perspective to actually enable any such application BPO service providers to then host their core competence and applications and deploy, manage these applications for their global MNC customers, whereas we just provide the platform to orchestrate a multi-cloud enabler underneath that. Or, for end customers, we are now giving them the ability to build an automated, policy based platform that allows them to then set up, run and manage their own application marketplace.

From an Orange perspective, we are very clear. We do not want to go into cloud integration where we actually even take over the end users' contract with public cloud providers like AWS, Azure and provide an end-to-end SLA even covering these third party cloud service providers. That is not our intention. We want to partner with these third party cloud service providers. We want to partner with the likes of Wipro and Infosys. And enable them to actually focus on their own core competence, but leave the handling of the data centre infrastructure, the virtualised infrastructure, and the integration of the network to us.

Jurek Krasnodebski

I would like to respond to it if I can. It's extremely -- two seconds. It's about aggregation, it's absolutely true. IT is as a service now and more and more we act as segregators. And more and more it's important that we talk about open software and open everything [they] also open model how IT should work. And everybody heard about ITIL. ITIL was good and it's in the past. There is a new model called IT a service from Open Group called IT4IT which precisely describes how IT can work as aggregator of services. So that's basically what are drawing on as well. So in essence open is everywhere today. And the competition will be who does it better. It's like in every other time.

Manek Dubash

Gint, do you have some thoughts?

Gint Atkinson

Yes. I think Peter will know that I sort of get a wild hair around a theme when we start talking about working with partners and integrating product lines or capabilities. And we always end up with this huge chorus of people that repeat this phrase. And unfortunately these are people that are supposed to be on strategy teams. And the regular chorus is, why are we enabling the competition, especially in today's environment where the ecosystems a lot of partnering, you don't want to do

everything yourself, but across all companies we really find a lot of the sentiment. And I think it's that, it's hard for a lot of people to understand how to come together and play together when many times you have to both compete together against each other and then turn around and do something together.

So in the context of aggregation and brokerage KVH is extremely niche'd. We started off from serving high-frequency traders and capital markets, so our networks went from all the top stock exchanges throughout APAC, lowest latency routes. We used cables from NTT but Tokyo to Singapore we were still faster than NTT. How could that be? Well they messed it up in the metro.

So we went from the landing station, built the shortest hop, fastest network straight to the stock markets, offered co-location services, built servers there. Then did virtual private cloud, so if you need to spin up a server in the Tokyo Stock Exchange that was a cross-connect away from the Tokyo Stock Exchange, then spin up another server in Singapore we could do all of this. So very niche and you can see for a small player you can make that work out.

But when you become a bigger player like Orange and you're doing an awful lot of everything for an awful lot of markets and you're offering compute and lots of cloud services, and then you have the capability or orchestrate across everything you also have the conflict of interest and that, I don't want to say the tendency, but the situation where it's really easy to say, are we enabling the competition by brokering out compute to Amazon? If you can't charge, if you can't make a transaction charge for integrating Amazon's compute into everything else and then charge the customer for moving around their workloads and their needs across this whole cloud that you're brokering, then I think we are going to end up, larger providers are going to end up in a situation where the mobile carriers were. How open do you make your mobile app environment and your whole mobile network or do you make a closed garden?

Manek Dubash

Well presumably you can, because the CIO wants fewer relationships to manage and so you're providing a service by doing that.

Gint Atkinson

Right, but my point is internally you're going to have these forces that are saying why are we brokering Amazon. We invested all of this CapEx in compute. Why aren't we selling more of our private cloud or our virtual private cloud? Why are we doing this bursaring?

Manek Dubash

Because that's what the customer wants.

Derrick Loi

Exactly.

Gint Atkinson

That doesn't work internally. People have jobs. You've got all these VPs stabbing each other in the back, and we can go on and on with all the drama that's been documented for thousands of years, but in large organisations this kind of a situation gets really difficult. The internal part of it how do you really make it work out. And I think the brokerage thing is a little bit -- in a large organisation it stirs up a lot of conflict internally within the service provider, especially a CapEx service provider that does have a lot of the infrastructure to do it all.

So do you need to be a successful broker of cloud services? Do you need to be a master of orchestration and networking? Take a look at what AT&T has said recently and some of Verizon's moves and the network and cloud connectivity is coming into higher focus, and its taking -- it appears to be moving up in terms of strategic priority. Is this saying that they see an opportunity in brokering and connecting all of this stuff and what's it going to do to their pure cloud services?

Manek Dubash

Anybody else any thoughts? Peter?

Peter Lam

Yes, so I'm coming from the vendor side. So Infinera right now is the leader for optical equipments. So I definitely see a lot of challenges the service providers have. So I fully agree that the -- it's actually all driven by the clients, the customers what services that they want. And the trouble, you guys have probably, is how to differentiate from BT to KVH to Orange. So I'm glad I don't have that problem. But from our perspective in a word definitely like to work with service providers to enable them to create new services.

So maybe I can share one example. That one of our customer's Telstra, which is probably some competitor of yours, so they recently launched an on-demand network as a service. So what they do essentially is to allow, using SDN technologies to enable their customers, through a web portal on-demand, order network services that they can define and how much bandwidth that they want, the latency options, the data centre end points and the duration of the services. So these are, I think, some of the new ideas that service providers are trying to create and try to differentiate themselves rather than just doing a cloud brokerage. So I think from the vendor side we try to help our customers, which is to service providers to differentiate themselves.

Manek Dubash

Any other thoughts on this issue Dan or Jurek?

Dan Pitt

I'm thinking more the technology side I think it's sort of opening up some new ground in the interfaces between operators. We work on that just on the SDN side looking at east/west communication. But when you get into the business process it's a more

complex interface because you've got charging and then pass-through as well. And I'm kind of curious where you think the looming issues lie there.

Gint Atkinson

Well starting off with the order I'll kind of give a good internal example. Colt KVH at the engineering level were effectively integrated a long time ago. We had our two identical platforms, different service definitions but same service platform, same engineering, global engineering team. And we were really excited when officially the acquisition happened. And we thought on the engineering team it would be -- the integration work was done on our side.

But it's interesting as soon as we had to integrate the business processes and handle an order and figure out how order flow-through was going to happen from London to Tokyo or Tokyo to London as an integrated company instead of two separate orders, on the network it was transparent but now how do we integrate the ordering systems and the trouble ticketing systems and everything else.

The amount of stress that that produced was shocking, and the engineering team felt it. So I think definitely at the business process level there is a massive amount of issues on how partners are going to effectively work together.

Jurek Krasnodebski

I can only say welcome to the business world. That's how the cookie crumbles. I believe that the competition lies, who is going to figure out service, service is definition, service changing, automated contract and automated contract aggregation so it would become automatic. And there are a lot of works being done on it. And then it will solve your problem. Of course, it doesn't solve politics, because if I am responsible for selling MPLS and I'm only interested in MPLS obviously that's what I drive, it's a product mindset.

But if on other hand you start cross-leveraging multiple services to solve business problems well one of the models will win and it's pretty obvious which one now have got upper hand. It's not any longer products simple like this. And obviously this [inaudible] the issue is service, out on standard contract, embedded contract into services, chaining of them automatically and proving that there is a business value for everybody, fun part. Its engineers learning what is the value cost benefit to risk and user experience.

Gint Atkinson

The way to show the benefit between two partners is to have one partner pre-order all the services that are going to be in the chain. That's an extreme, but that's normally where it starts off. If you want to do business together put money on the table and take down a bunch of services, now you re-sell it. And that simplifies the order process too right, we don't need to -- we don't have to do per-subscriber order integration we just take down a wholesale order.

Jurek Krasnodebski

Not going to happen. It's too much. It's simply too much risk. And, yes, in the past that was the [mode] because I could predict the future, good luck of predicting the future today. In other words this is where we are. We are in a dynamic mode. And I'm not saying it's comfortable, I'm not saying everybody solves it but that's where we are.

Manek Dubash

Any questions out there at this stage? We have a question from Chris Rezentes

Chris Rezentes, Verizon

Yes, Chris from Verizon. I find this very interesting. Working in Verizon we have seen exactly what you're explaining up there. I guess my question then to the panel, I hear what Peter was mentioning, wouldn't it at the end of the day boil down to what the customer is wanting, what's going to make it easier for that customer? So if it is a single source to get your network and cloud wouldn't that be the direction? I mean you would have -- we would have to be going to in that direction right?

Jurek Krasnodebski

Of course, it is so obviously that's why Orange and that's why BT create this kind of offer. And I bet Verizon is going there or there already okay. We think the same. It's very difficult to have original thought in this world. So it will be there and it is our problem to solve. Of course it's driven by customers, and it's also driven by elevation of conversation. We don't go any longer to customer and talk about network and we are BT. We talk about more and more about the business problem.

That's why we bring specialised services for finance, specialised services for health, specialised services for retail because we want to elevate this conversation to business to be on a conversation about the value instead of being on a conversation traditionally of lowering cost of providing network forever.

Gint Atkinson

However, when I service you and I give you my ultra-low latency network which is where you do get it for Radianz, you know the orders I'm getting ultra-low latency right. So I'm at a different level of the business right.

Jurek Krasnodebski

Okay. I just want to add nothing is perfect in this world. That's what we are doing.

Manek Dubash

So is the customer getting a good deal and how can we make sure the customer gets a better deal? And I think it's probably going to have to be the final question guys because I think there's only this question between you and lunch and everything.

Jurek Krasnodebski

I think the answer is very simple, look at this we are providing this, Orange provide this, Verizon provide it that's called competition.

Gint Atkinson

And everyone is also a customer and suppliers to each other.

Jurek Krasnodebski

Absolutely.

Gint Atkinson

Yes, so that's the other thing. That's where it gets tough. But I think that's also a driver. That's a force that's driving optimisation in the whole ecosystem for sure.

Manek Dubash

So how can Peter and Dan who are technologists how can they help you do what you do?

Gint Atkinson

Really good, go through the roadmap feature request, two, fix the issues, three, not only drop the price but pay me to use your products because that's movie star pricing right? So if you want to move your starter use your product, then you've got to pay. So that's the ultimate. But, no, I think the vendors really are doing quite well and that is staying on top of where the roadmap needs to go and then the price pressures are enormous on everybody. That's just the reality.

Dan Pitt

So we are an organisation as a Board of Directors consists only of network operators, and so it's their requirements that drive our portfolio and the activities that we pursue.

Manek Dubash

Fair point.

Derrick Loi

Maybe if I could sum up, I think that's exactly the reason why this session is called business defined cloud networking. Because if you break down that word into the three parts, business defined means are we listening to our customers? Are we providing a service that is defined based on the business needs of our customers, which is about the applications, about the ability to still use their legacy applications but tap on the new business model and the new SaaS availability out there?

Next, the cloud, the underlying DC and virtualized infrastructure that support all these applications. At the same time, we also recognise the fact that there are public cloud

providers like AWS, Azure where cost affordability, usage based pricing and ease of use are their main selling points. And for Orange, we are very clear that we are not competing with public clouds like AWS and Azure, which is why I think the challenge that you mentioned earlier, it was quite an easy answer for us, easy question for us to address because we understood that we are just providing the private cloud and virtual private cloud. We left the public cloud to the public cloud operators.

But what we also hear from our customers, and this comes back to the business define, we are hearing from our customers how do you extend the provisioning, the service management, the SLA of the cloud/data centre services to your networking, your MPLS IPVPN and even extend that further to a third party public cloud operator. And that's what we have done to respond to them and address the 3rd part of today's topic, the networking.

And then for us, I think the ability to make such a decision was simplified because we actually set up a vertical business unit just to focus on data centre and cloud. And therefore we are more agile, and we are independent to be able to make decisions that sometimes might be painful -- if it has been a single organisation as a whole.

Manek Dubash

Okay, and on that note, unless there's any further last quick question, no, I'd like to call a halt I'm afraid but lunch calls. And thank you very much for your thoughts and erudition. Gentlemen, thank you.

[End]