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Conference Debate Session VII

*Next-Generation Service Provisioning – Standards,
Challenges, Opportunities*

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Panellists:

Damon Ennis	Senior Vice President of Products, Silver Peak Systems
Mike Frane	Vice President Product Management, Windstream
Dan Pitt	Senior Vice President, MEF
Paul Gampe	Chief Technology Officer, PCCW Global
Wayne Cheung	Director of Service Provider Marketing, Jupiter Networks
Michael Hallett	Head of Global Sales and Business Development, NetFoundry

Rajesh Ghai

Hi. Good morning everyone. My name is Rajesh Ghai. I am the IDC analyst for Carrier Network Infrastructure. So, from my vantage point at IDC, what we see is that carriers globally are faced with some acute challenges and they can be summarised in the form of three Cs of commoditisation, competition and complexity. Commoditisation essentially refers to the fact that carriers globally are chronically challenged to increase the dollar per bit that they earn from their existing services. Part of that challenge accrues from the fact that they have intense competition, not just from their peers, but also from new competitors such as the hyperscalers who have come on over the top and offered more nimble value added services. While these carriers may want to emulate the hyperscalers, they are challenged by a complex legacy infrastructure.

It's quite obvious they recognise the need to digitally transform themselves and the goals of digital transformation are essentially in terms of these four attributions of

flexibility, efficiency, agility and innovation. Essentially, these are attributes that are coming from the hyperscalers. So, what does agility mean? It means the ability to react to a changing environment. Flexibility is in terms of coming out with new customer experiences, either proactively or reactively to an environment. Efficiency is in terms of continuously reducing the cost per bit in order to be competitive or in terms of the declining or the stable revenue of a bit.

Most importantly, what's important is the ability to innovate in terms of coming out with new services which essentially, is the key message of what I'm going to say here, is that next generation service provisioning is extremely important. It's the life blood of most service providers and that is essentially what's going to be important as far as their ability to survive and thrive.

In terms of new service generation, we know new service provisioning, if you think about 5G; and as far as the US is concerned, 5G is only being talked about in terms of fixed wireless access, which is an incremental revenue stream, a new service for the M&Os in the US. If you think about wireline services, a lot of investment is flowing into things like SD-WAN and PCP, which are again valued added services for service providers who have historically provided only transport services.

With that said, we will turn to our panel, we've got a very diverse mix of panellists over here; a little crowded but we will stay organised. So, in order to ensure that we all get enough time to speak, with our panellists, I will request you to talk two sentences; one, what's your organisation and what your role is within that organisation. Can we start from the right? Damon.

Damon Ennis

Thanks. I'm Damon Ennis. I am Senior VP of Products at Silver Peak. Silver Peak is a leading global SD-WAN vendor serving both enterprises and service providers alike.

Mike Frane

Mike Frane. I am the Vice President of Product for Windstream Enterprise focused on our network security and data portfolio. Windstream Enterprise is a North American based company that provides innovate telecommunications and network services to medium and large size businesses.

Dan Pitt

I'm Dan Pitt. I'm Senior Vice President with MEF, which used to be the Metro Ethernet Forum, well known to this body. Now it's just the MEF Forum. We are a long-standing industry trade association that is really leading the industry into the whole realm of digital transformation through the provision of dynamic agile, assured and orchestrated services under what we call the MEF 3.0 framework, that addresses both technical, organisational and training and professional skills components.

Paul Gampe

Good morning. My name is Paul Gampe. I am the Chief Technology Officer of PCCW Global. PCCW Global is a Tier 1 carrier with the international operating division of HKT, and I think if there's anybody on the panel that's living proof that carriers are evolving and becoming, embracing the new technologies to enable new services provisions, I think it's probably me. Back in November of last year, Console Connect, a Silicon Valley Bay Area start-up was acquired by PCCW Global. We're part of the transformation of PCCW Global to deliver new services to our customers.

Wayne Cheung

Hello. My name is Wayne Cheung. I'm with Juniper Networks. I am the Director for Service Provider Marketing there. Juniper has been a long-time innovator in networking, switching, routing, security, really to make the network as simple as possible, to make all of these transformational workflows in technologies feasible into the future.

Michael Hallett

Good morning. Mike Hallett from NetFoundry. We are an innovation offshoot Tata Communications, a \$4 billion company which carries about 25% of the traffic worldwide. Essentially, what we do is build a private, trusted network on top of the internet. We do that using software only. So, really what we're talking about is application specific networking where we can, if you like, free up the application developer to get to the network by using software only implementation.

Rajesh Ghai

Thank you very much. In terms of the format they we're going to follow, I'm going to ask a question to each of the panellists. If any other panellist wants to respond or has something to add to what the first gentleman said, please raise your hand, and you can follow up.

In terms of the first question, I'm going to start with Mike. Mike, as one of the executives charged with bringing new services to the market on behalf of a large service provider, what are chief considerations that you've been thinking of in terms of your job and the process that you have followed for this so far?

Mike Frane

We started our transformation a few years ago, moving from more traditional telecom to a more software defined infrastructure. As we looked at that, we understood that it's not just the technology that's changing, it's our approach to operations, it's our approach to our own processes and how we handle the end user services. So, for us the technology really was an enabler and it was critical that we looked at how we can differentiate our services beyond that technology. As technology goes, it can be purchased by anybody and it's really the solution, the envelope that you put around that technology to provide true to your end user, that you really need to think through.

We spent four weeks locked in a room at Atlanta, thinking through not only how the technology was going to change our business but then how it was going to change our operations, change our customer facing, change how we interact with our customers and provide them with more control and visibility over what's happening in their network.

Rajesh Ghai

Great. Let's turn to Wayne. As a vendor focused predominantly on the service provider space, can you share a perspective about the current state of innovation, the challenges and opportunities that you see in terms of service provider provisioning new services and bringing them to market?

Wayne Cheung

Yeah. I think really what we've seen is now all of these types of innovative workflows, from IoT, the mobile 5G, and so forth, it's really creating the distribution of networking and services really anywhere and everywhere inside the traditional network. You think of data centres, you think of edges of the network; now these edges of the network are really turning into what we call the edge cloud now. So, that data centre that used to be centralised is now shifting to many, many more locations throughout a service provider's network. Then, think about really, now the edge of even an enterprise or residential demarcation point, even there is compute power there that can turn into the ability to support these new innovative services.

The biggest challenge really, is to figure out, well, how can you truly simplify the network and all the instrumentation, telemetry and operations such that these workflows can be truly distributed. I think that that's really the exciting step that we're going to be taking there.

Rajesh Ghai

I'll shift to Damon. As a leading vendor in the WAN space, I would like you to comment on what is emerging as a key requirement amongst service providers with automation.

Damon Ennis

Yeah. Well, automation is absolutely one of the key requirements. The transition to software defined networking for service providers, and I'll be interested in Mike's view on this too, is obviously they want to be able to serve their customers better, and that's enabled by software defined networking; but it's required a lot of change in the way that service providers think about delivering their services and a lot of retraining that's required, in terms of how the OSS BSS systems integrate and how that all works. So, it's a great time to be in networking, it's a great time to be disaggregating software and hardware. Great opportunities but a lot of very interesting challenges that I think we're only just really starting to address right now.

Mike Frane

I'd agree with that. One of the biggest areas of focus right now is we've greatly increased our own internal development capacity, because SDN and SD-WAN is highly automatable but the legacy telco systems, BSS, OSS, typically are not. Hopefully that's not a surprise to anyone in this room. So, we're spending a lot of our effort on, how do we pull people out of that process so we get more efficient and really leverage the technology for what it can do.

Damon Ennis

I think the other part of that too, is not only the technology transformation but the sheer volume of data you're having to deal with. A few SNMP alerts from maybe thousands of routers is a lot different from the telemetry you're getting via REST APIs to every single device out there.

Rajesh Ghai

Anyone else want to comment on that? Okay. Let's move on. The next question I would like to address is to Paul. As a global service provider for [I guess] on both the enterprise and the service providers and what is your perspective on the current state of innovation, in the context of the four attributes that we discussed in terms of agility, flexibility and efficiency?

Paul Gampe

Yeah. So, answering the question of, how do I think innovation is beginning to solve the challenges that carriers face, particularly helping deliver services to enterprise, and it's very fortunate to be sitting beside Dan and representation of MEF. PCCW Global is a very proud supporter and contributor to MEF. I think that industry collaboration is a key part to how we're going to solve the challenge. I think we see in the industry today, particularly earlier conversations from Apstra about how SDN is beginning to solve the challenges the enterprise face in designing their inside the data centre networks. Lot of innovation happening in that space, around SDN and it's very successful in the data centre.

At PCCW Global, where we're excited is, what we can do with MEF and as a key standards organisation, about solving the east-west connectivity. Console Connect, the platform that was acquired in November last year, is really focused on delivering that restful API interface so that other carriers or other enterprises or SAS providers, can orchestrate our network as if it is their own; because we know that's where the innovation is moving to. We know the enterprise want to be able to hit an APIN point, move a 100 megabyte link to a one gigabyte link, orchestrate a backup and bring that bandwidth that was allocated to them to some other place in their network.

So, it's acknowledging that the industry is moving to APIs and that the network needs to look like any other API end point. I think that's how we're going to achieve what the enterprise needs.

Rajesh Ghai

A question for Dan. As the head of a leading standards organisation and what I wanted to understand is, in this context, obviously you've had significant success with Carrier Ethernet and bringing, enabling operators to bring Carrier Ethernet to the market. Can you talk about the role you envision for MEF and the standards organisations to enable operators to enjoy continued success with the next gen service provision? [Unclear], you're talking about fixed wireless access. What exactly are you doing with the LSO process and what exactly are you doing in the non-technology side of things, the people processes?

Dan Pitt

Sure. There's really a long-term vision that we have and then there are short-term steps that we are helping the industry to take to get there from here. Paul mentioned something interesting about the standards and the collaboration among the service providers. If you look at the competition from the web-scale operators, they don't need collaborate with anybody. They do their own stuff, they put everything everywhere and they move very quickly. The operators, because they cover limited geographical areas, need to collaborate, and what we're trying to do is accelerate that collaboration to as Mike said, help them turn more into software based organisations themselves and starting with the Brownfield environment they all have, take concrete steps.

Now, Paul mentioned the importance of APIs, and what we've done in our life cycle service orchestration, LSO Reference Architecture, is define the important north-south and east-west APIs. The north-south are within an operator's domain to really partition the complexity of today's networks with all the new technologies we've heard about this week, into subdivisions that can stand alone, allowing you to experiment in one layer without affecting everything else.

I want to talk about the east-west APIs. This is to concatenate services between operators to serve global enterprises with a large geographical reach. Now, we have talked a lot about the Sonata east-west API. This is essentially BSS to BSS to instantiate a service, and the theme of this session here is service provisioning, next generation service provisioning. It's going to change to something we have no idea what it looks like now. Sonata has been the highlight, and it was used to concatenate ONAP to ONAP and ONAP to not ONAP back in November; that's to set up a service, get it running, figure out how to pay for it. Well, that's great.

The other east-west below that, is essentially the OSS level. It's called interlude and it's how to manage and control a service when it's up and running. We have this notion that we're going to conceive a service, we're going to start a service, we're going to stop a service. Five years from now that's going to look old fashioned. What we want is the capability on a moment's notice to get the network to behave how a particular application needs right then.

Interlude is going to be used for that in conjunction with north-south APIs and one of the good precursors to this is 5G slicing. We're going to set up a slice, establish provisioning for a category of services, whether as you say, it's IoT or it's real time

video distribution from a live event. Get those set up and then you can't leave that to people. That has to be automated, but more importantly, as the application needs come and go, to have the service characteristics be dynamically modified, not just once when you set it up and provision it, but continually. That's what these other interfaces are for; and because we've gotten a lot of support among other, not just the industry players, but the other standards organisations and the open source projects, by getting this adoption, they can all worry not about those parts, but about how to really create new value for their own customers.

Rajesh Ghai

A lot of good content over there and we'll come back to some questions for the other panellists on this. Before we do that, I want to talk to Mike and ask him about NetFoundry. You've been at the forefront talking about application specific networks. Can you talk a little bit about how that concept really helps a service provider provision those next gen services in the context of the four attributes that they are seeking at this point of time?

Michael Hallett

I do. I'll give you an example. I just got back from a financial services conference in New York and it was full of C level people. I've heard about transformation for years now, but it's happening. It's happening in every industry. That one probably is as complex as you can get, but you've got CTOs and C level people talking about, I need new revenue, I need to put new apps in right away, I need to get to the cloud, I need to talk to devices, and I have to do that quickly, otherwise I will become uncompetitive and my costs will drive up and my competitors are going to eat my lunch, is basically what they're saying.

So, the only way you can really do that effectively, going forward, is using some kind of software defined capability. It's really the only way, because the volume, the 25 billion in devices that are to be had there in four or five years, the number of clouds, the number of apps sitting in the clouds and not in the cloud, in secure data centres potentially. So, you have to be agnostic from the cloud. You have to really be agnostic from any provider. We're a telco ourselves in many respects. We've got 1500 agreements with different telecom companies around the world. So being able to provide a large company like that, the ability to transform and transform quickly, usually what I call traditional and new software defined network capabilities, is where they want to go; and it ends up being a business discussion, not about networking. It's really about paperless banking or some kind of retail banking that is beyond what is around today.

So, the discussions we had were, how do we implement this quickly, and, if I want to change, for example, regional banking changes crazily in the US. We have one client that, they use our software today for replacing virtual private networks and disaster recovery; because we send the data at UDP speed, so you're not dealing with TCP IP, framing problems. It goes from gateway to gateway and it's all virtual machine driven or client driven. It's very easy to implement from an orchestration console.

Not an advert for the company, but I think feeding into what our customers and potential clients are saying, which is, how quickly can I change my company, how quickly can I transform what I'm doing, how quickly can I start to get revenue from new sources of business by implementing these applications? And, how quickly can I free myself from some of the traditional ways of doing things. Most regulated business will always have their data centres, their secure data centres, their leased lines, their dedicated lines, but beyond that, they're really looking for a new way to do business and that's what we're hearing.

Dan Pitt

One comment. You're absolutely right, Mike, that the digital transformation, of which we speak, is really applying to the carriers as we know, to their customers, to their vendor suppliers and to organisations, even like MEF. We issue open source software, software development kits for our APIs. We've never done that before. We're working on tooling for information modelling to automatically translate them to data models that everyone can agree on. This is a new world for us as well, and it's exciting to be going through the journey with the operators and with their customers too.

Damon Ennis

Just one really quick point, just bringing up what Mike said over there. The network needs to be application driven. There's been a lot of talk about that in today's and yesterday's meetings, but there was also a lot of talk about machine learning and about real, what was going to be a real application of machine learning. To me, what's interesting is not only does the enterprise and the end customer and the service partner have to react so quickly, the applications are changing underneath you, faster than you even know it. So, a real interesting application of machine learning is putting some intelligence in the network so we can figure out, oh, based on the behaviour of this application, it actually looks like voice, it looks like video, it looks like a botnet attack, whatever it may be. That's the kind of real application of machine learning we can bring to networks to make them even more self-driven.

Michael Hallett

I kind of think we're getting into Moore's Law of application use across networks, because it's getting faster and faster and people are going to get, I think, a little desperate eventually because if you don't transform, you're in trouble. So, that's what it boils down to. It doesn't boil down to bits and bytes and boxes and things like that, it boils down to that business perspective.

Rajesh Ghai

That's great. So, if you don't transform, you're in trouble. Can we ask a question of the audience?

Audience Member

Yeah, hi. Me again. I'm interested in the position of people in this kind of carrier and telco space against the doctrine, the assumption that IoT inherently travels over the public internet. I've met people, like AWS, who's internal network does not use IP as its transport mechanism, or it's protocol, and the same is true of people like Brocade. There's been lots of work on other protocols and segregation and I've certainly seen - for example, in Singapore, everybody has fibre access and they can choose between one of 30 ISPs, who do not own the channel. What inhibits you from being able to completely segregate someone's IoT traffic because you own the wire, because you own the switch, because you own the entire standard definition space? Why are we suffering from this problem of IoT being public and hence vulnerable? Make it private. Where's the inhibition here?

Michael Hallett

Again, all I'm hearing right now is, please, please help me, please help me separate out my traditional infrastructure, get specific [ran an] application to a cloud, or a cloud to a cloud or an app to an app or device to an app, please help me get to that point where it's efficient. I've lowered my costs dramatically; both soft costs and hard costs, not the primary driver by any means, but what the primary driver really is, is the agility I need to do business, has now become critical and if I don't do that, I'm going to have to figure it out or lose my job later on, one or the other; but I have to be able to implement what I would call, specific applications that talk to each other or talk to any cloud or can go in any cloud at any point in time as quickly as possible. In minutes, we can set up a network in minutes. Again, not an advert for the company, but that's what we can do. That's what people are really starting to say, hey, that is attractive.

Mike Frane

I think the main point is not just cost efficiency, but we're long past the days when the infrastructure was service specific. Damon pointed out we're going to have an avalanche of new applications we haven't thought of. You can't have any of them relying on specific infrastructure.

Rajesh Ghai

Anyone else?

Damon Ennis

I think in the United States as well, you mentioned you have a choice of 30 different ISPs in a building. We do have that in some buildings but it's still highly dense metropolitan areas. When you look at a distributed enterprise, frankly we just don't have the choice of multiple carriers in a lot of market still, in the United States. In some cases, based on conversations we've had yesterday, we don't have any choice for broadband. We do have customers who are implementing secondary networks to keep certain traffic off of their core MPOS network or their private network, but the access isn't ubiquitous enough in the US. Some of the customers are looking at 4G to do that

as well, but we also still have that pay per use model for 4G, so they can't predict their cost stream, so typically they don't like to move in that direction either.

Rajesh Ghai

Are there any other questions with the audience? All right. Thank you, panellists. We just got started but unfortunately, we're out of time, but thanks for participating and thank you for [unclear].

[end]