



## Episode 32 – Satellite Cloud Services, Hop on Board or Get Left Behind?

Speaker: Robert Bell, Executive Director, World Teleport Association – 28 minutes

John Gilroy:

Welcome to Constellations, a podcast from Kratos. My name is John Gilroy, and I'll be your moderator today. Today on the Constellations Podcast, we'll talk about how the cloud is impacting teleport operators and, more broadly, the satellite industry. Are cloud service providers going to make teleport operators obsolete or bring new value as partners? What opportunities and threats does the cloud present to teleport operators? What impact will the cloud have in the next five years on the satellite industry? Who will be the winners and losers?

Today, we have someone who's very qualified to tackle some of these critical issues. Robert Bell, the Executive Director of the World Teleport Association, has over 30 years of experience in the industry. He has authored numerous articles and WTA research reports, and recently wrote a report titled "Clear Skies or Stormy Weather? Cloud Services for Teleport Operators."

Well, I'm going to toss out a little fact here, Robert, and I'm going to have you jump right in. You know, we all know Gartner and the Gartner Graph and everything. Gartner says that cloud service providers generated \$220 billion in revenue in 2016, and it's going to double by 2020. What the heck is going on here? What is the driving force here, Robert?

Robert Bell:

Well, that's a very good question, and I'm very pleased to be here with you, so thank you for this opportunity. The driving force is basically somebody built a better mousetrap. If you think about IT, as I grew up with it, and I remember distinctly visiting the firm my father worked for back in the, gosh, this must've been back in the '60s and going into what was called The Glass House, with the giant machines and the tape, which is gone, whirling on the machines, and the impact printers.

The cloud service providers figured out that nobody actually wants to own computers. What they actually want is the computing service. They invested to produce enormous scale, which is totally flexible as far as the customer is concerned. You can buy a little bit of it. You can buy a lot of it. You can turn it on and off in minutes. It is therefore scalable to a degree that is hard to imagine what the limit is for scalability for an Amazon Web Services or a Microsoft, and you pay for it as you go, instead of having to put down millions of dollars in IT equipment, in terms of capital. When a model is that much better than what went before, you see this kind of almost exponential growth.

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John Gilroy: If you look at potential markets here, enterprises, large enterprises, government, military, media. Who do you think is going to take up on this opportunity?

Robert Bell: Well, the answer is everybody. You've got a thing here where what used to be a capital expense becomes an operating expense. What that really means is that it's the risk of starting to do something has been drastically reduced. Enterprise is a major, major, major user of this, for the simple reason that they don't want to own things that are not core to their business. You can argue that while computing and information technology processes are core to almost every business today, actually owning the boxes and running them is not. We're seeing that take off in a very big way, and in particular, because we're in this time of very fast change in market demand, in applications ... One of my favorite statistics is that in 2004, this guy named Mark started a business in his university dorm room, and he didn't have any customers, and he didn't have any revenue, and 12 years later, he had \$28 billion in revenue from two billion customers. His last name, of course, was Zuckerberg, okay?

That's impossible. That's impossible. It's never been done. That's the world we're living in. Enterprises loves the fact that they can cost effectively test something, knock the bugs out of it and, if it's successful, they can scale it up really, really fast. If it's not successful, or if the market turns down, they can back out of it without stranding millions of dollars of investment. Enterprise is all in on this and going stronger.

John Gilroy: I'd work with software developers, who used to talk about spinning up a server and taking two or three days. Now, with the cloud, you can do this very quickly and easily, but it's not all perfect. There are negative sides to this. Let's give maybe some of the cons of the whole idea of moving to the cloud. There's negatives to that, too, aren't there?

Robert Bell: Well, there's negative for the service providers.

John Gilroy: Ah.

Robert Bell: For the companies themselves, the end users, I don't think so. Government is all in on this. According to Microsoft, they've got five million government customers. Amazon has seen government grow by 221% year over year. It goes on and on. Even though media has been late to the party, they're really driving. They're starting to basically give in to the economics of this thing.

In terms of the pros and cons, the cons really are for the companies that are the service provider companies, the companies that actually have always met the needs of enterprise, of government, of media, and now there's a new player on

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the street. For them, that gets interesting, because the cloud is enormous. It's dominant. As one of the people, one of the executives, we interviewed for our report said, "If the cloud providers really decide that they want to be in our business, game over, you know? Game over, because they've got the money. They've got the willpower and the technology needed to take it over. He just doesn't think that's going to happen.

It's a really complex story. The pros and the cons for service providers already in business are that somebody may be taking some of your business. There are interesting little technology issues around this. One of the issues is latency, okay, so the amount of time it takes for me to get back a response from the server when I ask it of something. When you're on somebody else's compute resources that could be 1000 miles away, latency begins to become an issue. It doesn't matter for most things, but it matters very much for very sensitive applications, like video, like media. There are a lot of new complications that come out of it, in terms of how you connect. You have to make sure there are no bottlenecks between you and your cloud provider, even though, again, you don't necessarily know where your cloud provider is. It's become a much more complex web of technology to manage, in order to get all the benefits that the cloud offers.

John Gilroy: Well, here we are in Washington, D.C. The hot topic here, of course, is cybersecurity, so from the perspective of cybersecurity, do you think the cloud is secure for today's teleport operators?

Robert Bell: Well, I, like anybody else who doesn't really know, and that's pretty much most of us, the answer is probably more secure than your own in-house operation. If you just think about who the players are, their entire business rests on not being hacked. For most internal IT operations, it also does. They just don't know it yet. Of course, there's endless stories about the government agencies, the private sector companies that have been hacked. Any cybersecurity expert will tell you, "It's not a question of if. It's a question of when. By the way, you may already have been and don't know it."

Microsoft, Google, Amazon spend huge amounts of money on this every month, and so I'm personally going to bet that they're not going to be the security flaw. I think the security flaw will end up being much more the companies for whom and organizations for whom this whole IT thing is a sideline. It's something they have to do, in order to do their business. For the major cloud providers, that's all they do.

John Gilroy: I read your whitepaper this morning. There are some terms there that I'm familiar with, but there may be some listeners not familiar with these terms of public cloud, private cloud, hybrid cloud. How would you define that, in terms of teleport operators and what it means to them?

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Robert Bell:

Yeah, that's really, really interesting. The public cloud is made up of the companies, whose names I've been throwing around, right? It's big. It's owned and managed by that particular company. From end to end, they control every single bit of it, and they're completely responsible for it. One of the interesting things is that this is exactly the same model as a teleport operator. Teleport operator, their business model is about the shared use of an extremely expensive, complicated resource among many customers. Each one of those customers could build their own, but it just doesn't make any sense, economically, to do so, because they can share the use of this facility.

Well, the cloud service provider's the same thing. They're offering you a better value proposition, because they're sharing it all, but, that said, not every end user these days is really still comfortable with that whole concept, and so the private cloud exists. The private cloud exists, too, in which we operate from a private data center. We're able to customize it a great deal more. We're able to restrict access in new ways, perhaps. We can guarantee that Company X-Y-Z, that's our customer, can actually bring its otherwise equipment into our data center and host it there. That's something that public cloud providers don't want you to do.

This whole concept of the hybrid, which is usually ... Usually, the right answer is somewhere in between, right? You're not going to stop having your own data center. In fact, one of the respondents to our interview said: the public cloud is good and is wonderful. It's just not good enough yet. I'm not going to ... I can't possibly turn over all of my computing processes, all of my information storage to them. I have things that I have to keep in house, but I love the idea that I can then export what I need from my data center to our cloud platform, get the processing done there for applications that are ... Good example: If you're in the media business, you probably still want to store your media assets in house, if you will, because that's your bank account, where all the value of your organization is if you're HBO, let's say, but the cloud is a tremendous processing and distribution platform.

You want to be able to push stuff out there and use it to distribute, use it to do various kinds of repurposing of that content for, for instance, to stream it over the Internet. That's a very discrete application, so there you've got that hybrid solution. I'm still in charge, but I use this incredible capability for what it's best at.

John Gilroy:

Let's say we have a teleport operator, who is listening to this podcast, and he's wondering about what's in it for me? What competitive advantage can I get? Okay, Robert, give me some examples here. Give me some examples of these capabilities, so I can enhance my competitive value to it.

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Robert Bell:

It's interesting there are actually a lot of them. Probably the first and foremost competitive advantage is you don't have a choice. Your customers want this, they want to know about it, they want to know what you can do about it. In that case you're much better off being the expert who can guide them along. There's a tremendous number of teleport operators themselves can save a tremendous amount of their own money, reduce their operating cost, potentially increase their margins by moving a lot of processing to the cloud. I remember two years ago a member of my board was saying his company had just done a big study of this and proving to themselves that the economics were totally with the public cloud. It just made no sense for them to be actually running their own data center even though they were going to do it for certain purposes. Getting those cost savings, that's a big advantage right there, and therefore the company that's best at the cloud may very well have a major competitive advantage.

There are a lot of subtle things. The cloud is also a distribution platform. Increasingly, quickly in the media world online viewing of content, streaming content, of what's called over the top in the TV business, is growing like gangbusters. While traditional broadcast is kind of stagnate and shrinking a bit. Most of that delivery platform ultimately ties right into the cloud. By being in the cloud you're taking advantage of another way to get content to viewers, whom your customers are broadcasters, or cable channel, or whatever, want to reach. Again if you're an expert at that and you know how to do it better than somebody else that's a competitive advantage.

The last part about it is the most subtle, and it's usually the one that most people miss and I had no idea until I started doing these interviews. There are a lot of customers out on the cloud, these cloud service providers, that could potentially be your customers for things that they can't get in the cloud. For instance, satellite access, or access into dedicated fiber networks. In addition to bringing their customers to the cloud, teleport operators who are engaged in it are also finding that there are customers in the cloud, on the cloud services, that they can serve. The providers are very aware of this. The Amazons, the Microsofts, and the Googles all have programs that will basically help you sell into their network. It's quite interesting.

John Gilroy:

I'm sure there are many business development people that work for teleport operators that are kind of jumpy and nervous now. Maybe you can give an example, maybe this is how company A did it. From one of the members of your organization perhaps and show them how they can take this vision of the cloud and really improve their business model. Can you give us an example?

Robert Bell:

I can. Each of these examples is interesting because they are very specific and this kind of stuff always gets very specific. There was one company that we had was getting its request from its customers to help move to the cloud. They began looking into it. What they discovered was they could do it in a way that

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was an intense value to their customer. The customer had some application that it was running with the teleport, or just running by itself, that were absolutely perfect to move to the cloud. This teleport operator who had developed all this expertise helped them make that migration. It also was able to identify some legacy systems that were going to break if you put them out there. They helped them improve, basically brought some of those into their private data center because they could run those successfully. So it would bring it that hybrid solution. The knowledge that went into that, the advantage to the customer at not going out there and making those mistakes themselves was huge.

Another one that really fascinated me, was a story that a customer told us about using the cloud for something new and completely different. You mentioned cybersecurity, huge issue right? Whenever you open your data center, a port in your data center, to your customer, your customer needs to connect to you, you've created a security risk. What this particular teleport operator discovered was they could connect to some server space, a computing platform that had been created for them with a cloud service provider, and that connection is enormously secure. They can then have their customers connect through that same cloud services provider to their platform, their virtual platform inside that vast array of computing capacity, and communicate through that system in a manner that was 10 times more secure than anything they could have done between themselves. I thought that was just a fascinating way of adding value.

The last piece is just that particularly Amazon is ahead of everyone else on this but Microsoft is coming up right behind them. There is a tremendous number of applications that sit out on the cloud that can be purchased very inexpensively. We are talking everything from your office applications, to advanced media processing that are available. You plug into them, you turn them on, and again you don't have to, inside your company, support those things, spend money on them, from a licensing basis all the time. It's much cheaper to do it that way. There's three both sophisticated and in some ways very simple way this technology is changing how teleport operators run.

John Gilroy:

When I read that whitepaper this morning I got my highlighter out and I highlighted Legacy Systems. It popped up pretty constantly in your whitepaper here. Maybe this is the opportunity where teleport operators can look at Legacy System and help people make the transition and add scalability, flexibility, and perhaps even enhance cybersecurity. There's an opportunity there I think.

Robert Bell:

Yes there is. There's absolutely an opportunity there, and there's one of many. It's funny as I was listening to you there, it's an opportunity but here's the kicker, every teleport operator that is in a business related data, which means every teleport operator, whether they're in media, or something else, is going to have to change the way it does business. It's going to have to develop new kinds

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of expertise in order to be able to meet that new need. For those who can do it, who are willing to do it I think there are huge opportunity.

One of our executives that we interviewed had a very interesting insight. He said, "If you're going to do this, if you are starting from zero, if you're going to do this, think about it as though it were a startup business. Don't think about it as we're on some IT project or something like that. It's a startup business. You're going to start small. You're going to set up a dedicated team to do this thing. You're going to learn the risks. You're going to expect to fail fast, if you're going to fail you want to fail fast. Through that process you learn a tremendous amount without putting your primary business at risk."

Another one advises; the one thing you must never do is, when it comes time to do the cost estimating side of this, to figure out if you can do it for a profit, the last thing you ever want to do is do it as a paper based exercise based upon what the cloud service providers are telling you because it is not even close to the reality of your particular implementation. You've got to go out and try some things on a small scale and get to know it well.

John Gilroy:

You think a formula for winning in this new environment is going to have a few people come and do some test cases, come up with new examples, try something new, completely different, and if something goes wrong you can pivot and move somewhere along the way, because this whole concept of fail or we fail fast right from software development self, and fits in with the cloud perfectly. The winners are going to be ones from your perspective that jump in and maybe they make a mistake and try again and try something else. It's kind of risky.

Robert Bell:

It is risky but again business is risky. Risk brings reward we're told as long as it doesn't snap at you the other way. Again it's a question of scale. One of our providers said they had some customers who wanted them to build web portals for them so they could come in and access something. They looked at it and said, "Boy, we could go through are usual process, dedicate some server capacity, spin it up, set up all the stuff, or we could just put it out onto AWS. Let them take care of the security." They did that and it cost far, far less and it was far easier to implement. In the process they learned things that they needed to know, which in turn they were able to put to use later.

John Gilroy:

Some companies are very successful with partnering with others. Can you give us some examples, or maybe some ideas you think some teleport operators can enhance their marketing by partnering. Maybe some cloud service providers that can partner with teleport operators. How do you think that might work?



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Robert Bell:

Again these are smart folks who run these operations. AWS, Google, Microsoft all have very specific structured partnership programs where they have levels, right? You can go from just being a customer, to entering a low level partnership with them. At each level obviously you're spending more money, right, but in theory you're doing it to meet your own requirements. When you start getting up into the middle levels and above they're now dedicating someone to help you and they're talking to you about what your marketing needs are. What kind of customer acquisition you want to do and they're beginning to point you to different customers of theirs. You become part of their preferred providers list if you will. If you're a teleport operator you probably have satellite antennas, so when somebody needs to get off the cloud, because the cloud is not the world, and put something up on a space craft somewhere, you're going to get the call. They really work hard to reward partnerships because they know that's where their future lies.

This is something I never knew, they're always in the market for compute capacity from other providers. If you're a teleport operator and you've got a data center and it's located in Jakarta, just to pick a city out of the air, they may be very interested in that. Because many, many countries have rules and regs about where the data has to be located. Europe right now, obviously any of us who have gone to this GDPR thing with data protection know that Europeans are very serious about verifying where the data is. Well, that makes it, for instance, a European teleport provider with a data center kind of an interesting partner for AWS. It may have a customer who would really like to use your data center. So, it's going to do a deal with you to turn part of your data center into part of their claim.

John Gilroy:

There are some concerns here for teleport operators who do cloud service. I'm going to toss out two concerns and maybe you can add and just put this in more realistic perspective. There are people that move to the cloud and the first months bill they're like 'Wow.' It's called sticker shock, and there's companies out there designed to counter balance that whole idea. Secondly, in your paper you talked about ingress and egress and everyone wants to get on, but leaving the cloud can be problems as well. Those are two things I think our listeners should be wary about is sticker shock and be prepared exactly what the cost is going to be and this leaving and going back. Any other concerns maybe you can warn some of the listeners about please?

Robert Bell:

The two things you named are both the kinds of things that happen to you whenever you do something new. If you believe everything that your sales rep tells you then shame on you, because that's their job. Egress and ingress charges. Computing is really cheap on the platform. Getting data into and then getting the results of that data out, they charge for it. Well okay. That's really what I think is behind all this advice about start small, experiment, and find out. You're going to find out where all the pitfalls are. Then you're going to design



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your use of that resource, of course, to minimize the cost and get the maximum value out of it. I think the reason that they are interested in egress charges because they want you to stay on their platform, right? They want you do as much as you possibly can there, so you're probably going to figure out a way to design your application so you can keep a lot of the, not only the processing but the distribution for instance, on that platform.

Now right away you run into an interesting issue though there because distribution in all its forms is one of the primary businesses of the teleport. Talk about your business model having to adapt to a new reality, a new competitive opportunity. That's square on and that's one of the challenges the teleport operators are going to be dealing with.

**John Gilroy:** Robert you're up there in New York City, I'm sure there are companies in New York who've had their data centers shrink because they're using the cloud. Do you think sometime in the future cloud service providers will make teleport operators obsolete? How's that for hot topic?

**Robert Bell:** It's great. It's a very hot topic. It's the one that we asked our people, the executives we talked to, and they had some interesting answers to it actually. I was kind of impressed with, you never know whether the people are just whistling past the grave yard, or whether they're speaking from fact. One chief technology officer we talked to for instance said that as far as he's concerned the teleports core capabilities are still completely unique. The cloud for all of its power, and its flexibility, and its scalability, and its paper use appeal, has real limitations in terms of that technology. As much as things change they also remain the same. When your broadcast television is going to continue, particularly in this world of adaptation, customers are going to want to continuously change what they're doing. The more you're using a big amorphous data service as opposed to being able to get your most experienced people to get in there and wrestle with the application I think the more you're going to lose.

In some ways the biggest threat of the cloud is that it's going to convince users that they can sort of self-service this all, but of course in the real world when you're doing these unbelievably complex implementations, that's what teleport operators do, they're not just people who connect to wires or put you up on a satellite. They're adding tremendous value in making all the parts of this thing work together. Customers are going to find that, that enduring value is going to be important to them no matter really what happens with the cloud.

**John Gilroy:** Robert we're coming up on two minute drill here. I want you to take a look at five, eight years down the road. What do you think the impact of the cloud will be on the satellite industry?

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Robert Bell:

I think there's going to be a lot of content moving across the cloud. The whole satellite industry is going through a period right now where the alternatives to it are becoming increasingly visible. At the same time its core value continues to deliver that value. The core value of being able to go from one to many for the same price. The value of being able to go places that no fixed technology can go. I think we're going to see the cloud become a really, really important part of the world's distribution network. It already is but it's going to expand. I think satellite will still be doing what it'll be doing, eight, ten years from now. It'll probably be doing it for different sets of customers than it's been doing it for a long time.

One of the most exciting things happening in satellite right now is that after operating in its silo for the past half century it's becoming much more integrated in how we do everything. That's nothing but good news because it's nice to own one percent of the telecom market and to know you've got it protected. It's so much better to be part of five percent of that same market.

John Gilroy:

In the future flexibility, scalability, it's going to change, have to really test out different application and see how they fit. That's pretty good. Unfortunately Robert we're running out of time here. I'd like to thank my guest Robert Bell, the executive director of the World Teleport Association and if you liked this podcast please go to iTunes and like and maybe give us a review.