How will your programmes reach viewers in 2020?

The B2B transmission business is the mainstay of broadcast contribution and distribution, and it is undergoing big changes in technology and markets. What will the programme origination centre of tomorrow look like, and what new capabilities will it provide for content owners in Asia-Pacific? Robert Bell, executive director of the World Teleport Association, tells the APB Satellite Special more.

What are the trends shaping the future of broadcast distribution right now?

Robert Bell: We just published a report called *The Teleport of Tomorrow*, which gave me a chance to ask CEOs and CTOs how they see their businesses, technologies and operations changing.

The big change is in bandwidth. As 500Gb-800Gb of new satellite capacity enter service from now through to 2017, it is going to drive down prices so that the market can absorb that capacity. Service providers are working to figure out how to support more customers and services on less revenue per customer while running profitable and growing businesses.

Most of this capacity will be in the new high throughput satellite (HTS) architecture, which reuses frequencies across hundreds of spot-beams. That is going to make managing the network far more complex and challenging, and requires levels of automation and partnering among service providers that we have never seen before.

Will HTS satellites play a big role in broadcast distribution?

Bell: Not in distribution, because wide-beam satellites aren't going away. There is still no more cost-effective and reliable way to distribute video content to millions of people than wide-beam satellite, and that isn't going to change, even in the age of the Internet.

Yahoo! was recently reported to have paid US$85,000 to one content distribution network (CDN) for four hours of coverage of an American football game. Multiply that by the dozens or hundreds of CDNs that would be needed to cover a really big event like the World Cup or Super Bowl, and it's completely unaffordable. Online distribution will have an important place, but the optimal distribution network will always have a big satellite component.

Where HTS has a role to play is in contribution, and in the distribution of channels intended for one country or territory, because of local tastes or cultural restrictions for content. The narrow spot-beam architecture, with high throughput at a low price, is a perfect fit there.

What new capabilities will service providers be able to offer in the future?

Bell: Video-on-demand (VoD) is driven these days by catch-up viewing and by binge-watching of programmes. Today, people want to be able to do that on any screen. Now, what information do you need to provide that VoD service? You need to know exactly when the programme started by frame. Who knows that? It's not transmitted with the video signal: the only place in the universe that this information comes from is, the point of origination.

Our members originate a huge number of broadcast channels. One of them is working on a way to send this metadata along with the video signal and condition the video signal in such a way as to make it easy to find. That makes possible a frame-accurate service. They will mark the start and end of every bit of programming precisely and encode it into the metadata.

When they compress it, they insert an IDR frame at every break point, which will allow it to be played from that point, without reference to what came before it and without de-compressing the video. When they process it for delivery via Internet streaming, they segment the MPEG-2 transport stream along those boundaries.

When a new programme starts, they automatically shut down that segment and start a new segment with an IDR frame. The manifest can then track every piece that plays out a whole channel. It lets you change out advertisements, move them wherever you want. So, not only can they deliver over satellite in this format, but also over the Internet — and any service provider down the line who receives it can do frame-accurate distribution.

Will these changes ultimately be positive or negative for service providers and their customers?

Bell: Today's satellite networks are like the terrestrial networks of 10 years ago. They are made up of distinct, point-to-point links. But in information technology today, we are working in the cloud. Satellite needs to be like the cloud in five years' time — making everything simple, flexible, affordable and very high performance. That's the challenge our members set for themselves. It is a tough one, but it is going to be great for the industry and for its customers in broadcasting. APB

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