ENABLE: Wins Huawei NZ contract, looks to NBN

FLAMINGO: Carriers, customers can now co-create services

TELSYTE: Home automation on the rise and rise

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that fourth-generation regulators are increasingly becoming involved not only in the economic necessity of building affordable access, but also in the attendant social opportunities and challenges arising from better-connected communities."

Specific to the telecoms industry, the ITU pointed to net neutrality as an "important issue" as service providers explored flow management technologies to handle the "huge growth of data being carried over telecommunications networks."

"The question of whether action is needed to ensure unfettered access to the Internet is still being debated and challenged," the report said. While the report acknowledges different approaches may be needed for different markets, it draws the line at: "What should not be acceptable is for an operator to allow only its own services to be offered, while limiting those of competing service providers."

INTERCONNECTION: The report also tackled the subject of interconnection, particularly the transition of interconnection regimes from circuit-switched networks to next generation IP and national broadband access networks.

"Interconnection of circuit-switched networks has consumed a disproportionate amount of regulatory effort over the past 20 years, especially in the area of mandating cost-based prices," the report said. "But price regulation has not always yielded an adequate return on the investment of regulatory effort. Is it time now to learn and apply the lessons of the largely unregulated internet?"

According to the report, the future role of regulators will evolve from controlling interconnection charges, to monitoring interconnection agreement to dissuade anti-competitive behaviour – like the internet today.

The report also laid out several key goals for regulators when considering a new interconnection regime. These included ensuring any-to-any connectivity is achieved but allowing the market to decide how interconnection is arranged; keeping legacy circuit-switched regulator mechanisms separate from IP networks; keeping interconnection regulation "as simple as possible to avoid unintended consequences"; and retain "ex-ante cost-based regulation for wholesale broadband access (and backhaul in remote and rural areas) to ensure that there are sufficient investment incentives for next generation access technologies."

TV WHITE SPACES: On the mobile side, the report devoted a whole chapter to the emerging use of TV white spaces spectrum for mobile services.

Regulators are now being asked to regulate the use of TV white spaces spectrum. This not only brings to market new "extremely valuable spectrum," but also "points the way for further technological and regulatory development of a range of opportunistic sharing methods, either utilising a sharing database or through cognitive radio technologies," the report argued. "The challenge is for regulators to determine whether TVWS offers a real opportunity in terms of demand for spectrum use in their market – and how active they want to be in allowing and promoting it in their markets."

Other topics covered in the report include digital broadcasting, or the convergence of broadcast and telecoms networks and platforms and digital transactions, including the growing popularity of mobile payment services and the emergence of virtual currencies.

"The Trends report concludes that the previous regulatory categories no longer cover all the activities occurring in the sector. In the end, 4G regulation is about evolution, not radical change," the ITU said.

Tony Chan

Industry launches Open Cloud Project

The CloudEthernet Forum, an offshoot of the Metro Ethernet Forum, is launching a new initiative aimed at defining and testing what it calls CloudE 1.0 standards.

The project is supported by multiple vendors and operators in the software defined networking and network functions virtualisation market.

According to CEF president and Tata Communications executive James Walker, the project aims to define a reference architecture and common use cases for cloud services.

"What are the basic standards that need to be met for a workable cloud Ethernet services? A car is not a car without certain basic components – wheels, engine, steering etc – so the industry must decide a set of vendor-neutral networking criteria without which cloud services cannot realistically be supported," Walker said.

According to the CEF, CloudE 1.0 attempts to define the properties that a cloud must have. These are virtualisation, automation, security, programmability, and analytics, or VASPA as the CEF puts it. The CEF has set up five working groups to explore the five topics and determine a reference architecture that will be accepted as part of the CloudE 1.0 standard.

The project already has the support of senior executives at Citrix, Juniper, Wedge Networks, Comcast Cable, Spirant Communications, iomatrix, and others.

As part of the project, the CEF is setting up in parallel a test bed that will kick off the certification process to CloudE 1.0 services, added CEF member and founder and president of testing firm iometrix, Bob Mandeville. This "reference test bed" is currently being developed in a lab in Silicon Valley, with a global test bed on the drawing board.

One test already underway is Wedge Networks' security-based NFV. Wedge is now working with Spirent and Juniper to test its NFV-S solution inside a virtualised network environment.

"This reference test bed is the proving grounds for interoperability, applications performance, security and load balancing," CEF chairman and EVP of Spirent Communicaitons Jeff Schmitz said.

"In the long view, cloud services business is just beginning, however it is expanding fast and could go in many directions quickly without standards," commented Infonetics co-founder and principal analyst Michael Howard. "Today cloud services are dominated by a few big players, including AWS, Google, and Microsoft, but many telecom service providers are entering this business. The cloud services business today does not need another 'platform war', it needs a standards-based, open cloud environment."

Tony Chan

Too early for post-100G, says Infinera

There is no immediate need to introduce faster optical technologies beyond 100G wavelengths, according to Infinera. Infinera executives told CommsDay that the industry trend for 100G adoption is just ramping up and that demand is likely to only peak in the 2018 timeframe. According to Infinera VP of corporate marketing Mike Capuano, demand for 100G is currently driven by long haul terrestrial network operators, internet content providers and cable and cloud providers.

"These people have a lot of sunken investment on these fibre and they are now upgraded them with the larger capacities to get more value out of those assets," he said. "But the trend is just starting. 100G won't get significant penetration in the metro segments until probably 2015."

At this point, there is no need to upgrade wavelengths beyond 100G, Capuano said, while commenting on recent vendor announcements of 200G and 400G optical transport systems. "They are some trials and demonstrations, but our platform is already delivering 500G superchannels."

Infinera's DTN-X platform combines five 100G wavelengths inside a photonic integrated circuit, which forms a 500G superchannel. Infinera's solution is different from recent systems unveiled by Alcatel-Lucent, Huawei and ZTE, who showcased beyond 100G solutions, which use higher modulation or compression such as QPSK and 16QAM, as well as new implementation of the optical grid, to achieve higher per wavelength and per fibre capabilities. Alcatel-Lucent, for example, demonstrated a system that achieved 25Tbps of capacity per fibre by combining 16QAM modulation to boost per wavelength capacity to 200G and its FlexGrid solution to add 42.5% more wavelengths on an individual fibre.

So far, Capuano said, there is no immediate demand for these higher capacity systems, which are also limited in the distance that they can support. Citing an internal Infinera survey, Capuano said only 6%-7% of the operator respondents said they were interested in 16QAM modulation.

Meanwhile, Infinera was named the top optical transport vendor for 100G shipments by research-