

5G Technology: Wheeler to Circulate Proposal for New Rules

While commercial 5G networks might not be deployed until 2020, the FCC is jumpstart the development of 5G applications through new rules. In a speech at the National Press Club Mon, chmn Tom Wheeler said he is circulating proposed new regs that will identify and open up vast amounts of spectrum for 5G applications. "We call it the Spectrum Frontiers proceeding, and we will vote on it July 14th," Wheeler said. The rules, once approved, would make the US the 1st country to open up high-band spectrum for 5G networks and applications, he said. Major carriers like Verizon are eyeing early-stage 5G service as soon as next year, with commercial fixed-wireless service planned for 2020. With the ability to provide gigabit speeds, 5G will be crucial as wireless carriers enter the video space with their mobile OTT offerings. Cable, thanks to its ubiquitous network and nationwide WiFi hotspots in places where the majority of wireless data is consumed, is deemed to play a role. CableLabs has joined organizations like NYU Wireless to evaluate how spectrum in the millimeter wave region combined with the cable network will provide an economical foundation for 5G. And a multi-faceted CableLabs R&D program is addressing the key technologies required for 5G. In his remarks, Wheeler acknowledged that the move to 5G will allow faster and more flexible deployment of small cell technology. That means a lot more antenna siting decisions by local governments. That's why it's important that the FCC has streamlined its siting application process and environmental rules, something cable generally supports. In addition, all these small cell sites will need to be connected through backhaul. Wheeler noted backhaul connections can be as much as 30% of the cost of operating a wireless network. Cable MSO execs, including Comcast CFO Mike Cavanagh, recently suggested they are preparing to be part of the 5G game. During the company's 1Q earnings call, Cavanagh noted that Comcast's assets, including its backhaul capabilities, would be critical for the deployment of 5G. The problem is in many areas, competition in backhaul is limited, which could mean higher prices for wireless networks, Wheeler said. The FCC is addressing the problem in its special access proceeding, which asked whether the Commission should start regulating the rates charged by competitive providers of Ethernet and other business data services. Cable, still a new kid on the business service block, strongly opposes the approach. NCTA, in a filing with the FCC in April, said rate regulation would discourage the development



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of backhaul, just as 5G would require even more robust backhaul capability and even more investment.

Frontier Sues Charter: Frontier filed a lawsuit in federal court Mon against Charter, alleging false advertising and unfair competition. At issue is Frontier's entry into markets in CA and TX, which the telco claims Charter wants to disrupt. According to Frontier, a series of radio and print ads in the states have Charter claiming its data offering is 10x faster. that Frontier charges extra for HD and that Frontier doesn't offer unlimited domestic phone service. Frontier disputes the claims, accusing the MSO of "kindling misplaced anger" among consumers. "Charter's recent ad campaign is false and misleading and does not accurately portray the competitive, high quality products and services that we provide our customers," a Frontier spokesman said. "We owe it to our customers, employees, and shareholders to defend ourselves against false attacks such as this and to ensure that our products and services are honestly and fairly represented at all times by all parties." Charter declined to comment. Frontier completed its acquisition of Verizon's wireline operations in CA, TX and FL on April 1, acquiring some 3.3mln voice, 2.1mln broadband and 1.2mln FiOS video subs. Frontier takes issue with several claims in Charter direct mail pieces, including that it charges \$10 per month for HD service, that it has a 200 min/month calling plan vs Charter's unlimited plan and that Charter's 60 Mbps Internet service is 10x faster than its speeds (Frontier said it provides former Verizon FiOS customers base-level speeds of 50Mbps and offers speeds up to 500Mbps). It also takes aim at a radio spot that begins: "Hey former Verizon customers. Tired of being ripped off by Frontier?" Frontier said it sent a cease and desist letter on June 13, but that the MSO "failed to provide a meaningful response" and accused Frontier of making false statements of its own about Charter services. In addition to seeking an injunction for the ads, Frontier wants undetermined damages and has demanded a jury trial.

DISH Update: Who is **DISH** still fighting with? Not **NBCU**. The 2 reached a deal that resulted in the dismissal of all pending litigation between the 2 companies, including disputes over AutoHop and PrimeTime Anytime. The adskipping functionality won't be available for O&O **NBC** stations until 7 days after a program first airs. The two also have reached a deal for carriage/retrans, but aren't commenting on details. At our deadline, it was still sparring with **Tribune**. On Mon, DISH said Tribune rejected its proposal to enter into baseball-style arbitration. **NFL Net** also continues to be dark on DISH.

<u>Got Go7</u>: **HBO** took to **Twitter** Sun night to apologize for problems preventing people from live streaming a very big ep of "Game of Thrones" on **HBO Now**. "We're aware members are experiencing technical difficulties tonight. We hope to resolve this ASAP," read the HBO Now tweet. On Mon, the programmer said the issues "were quickly recognized last night by **MLBAM** and the service was fully restored by 9:50."

<u>Window Fun</u>: Showtime will let folks—including those who don't subscribe to the premium service—sample the Season 4 premiere of "Ray Donovan" ahead of its linear premiere Sun. Starting Mon, consumers could watch the premiere for free at YouTube.com and Sho.com. It's also a free video podcast on iTunes. -- **Bravo** is getting creative with "Odd Mom Out," whose 2nd season premiered Mon at 10pm. Eps 2 and 3 are being made available ahead of their linear debuts on BravoTV.com, VOD and the Bravo Now App.

<u>Ghosts & Ratings</u>: Might as well call it Destination Paranormal. "Ghosts of Shepherdstown" was **Destination America's** highest-rated and most-watched series debut ever, with the June 12 premiere delivering 663K total viewers, 529K HHs. It's the 3rd paranormal series premiere for the net this year to break records.

<u>Buffalo MSG</u>: MSG Nets and **Pegula Sports and Entertainment** announced a long-term rights deal for Buffalo Sabres games and a programming partnership related to other Pegula properties, such as the Buffalo Bills. MSN Nets will continue to be the exclusive regional telecast home to the Sabres. Other Pegula programming will be branded "MSG Western New York" in recognition of the connection of this programming to Western NY viewers. In addition to Buffalo Sabres hockey, MSG Western New York branded programming will include Buffalo Bills programming such as "The *Rex Ryan* Show," "Bills All Access" and "Bills Tonight," and beginning in the fall, a live block of programming dedicated to the Buffalo Sabres and Buffalo Bills.

Doing Good: Cox Ent announced the completion of solar projects at its Cox Comm Las Vegas facility and its Manheim Nevada facility. Combined, the solar installations annually prevent more than 1,700 tons of carbon from entering the environment. The installations produce 1,523 kW of clean energy, equivalent to the amount needed to power 238

BUSINESS & FINANCE

homes.

Mediacom Business: Mediacom

Business, the enterprise arm of Mediacom, scored another deal with Iowa Speedway to provide WiFi for fans in the Newton Club area. That means attendees in the Newton Club can access NASCAR and INDYCAR mobile apps with features like live leaderboards, real-time track position and driver telemetry, as well as driver audio and in-car cameras. Mediacom previously provided gigabit broadband for NASCAR Series, INDYCAR Series and ARCA Racing Series events.

People: Freeform named Jana Steele Helman as vp, programming and dev. She previously was dir, comedy development at Warner Bros Television, working on development and production of "Two Broke Girls," "Undateable" and other comedies. --Hulu named Julie De Traglia as head of ad sales research. She comes from NBCU where she served as svp, digital research. -- Julie McNamara, who has led drama development at CBS TV Studios for the past 10 years, has been named to the new post of evp, original content for CBS All Access. The digital service recently expanded into the development of exclusive original programming, with plans for 3 or 4 new series in the next year. Bryan Seabury will fill McNamara's role as svp, drama dev for broadcast and cable programming at CBS TV Studios. He was most recently svp, drama dev for CBS Ent.

BROADCASTERS/DBS/MMDS H DISH: 53.36 0.36 DISH: 53.36 0.36 BROADCASTERS/DBS/MMDS H DISH: 53.36 0.36 GRAY TELEVISION: 6.75 0.09 MEDIA GENERAL: 17.66 0.21 NEXSTAR: 49.44 1.03 N SINCLAIR: 30.44 0.17 N MSOS SINC SINC SINC SINC

CABLE ONE:	502.48	9.92
CABLEVISION:	34.87	(0.01)
CHARTER:	221.12	0.07
COMCAST:	62.46	0.09
GCI:	15.24	0.37
LIBERTY BROADBAND:	58.99	0.01
LIBERTY GLOBAL:	34.87	0.32
SHAW COMM:	18.97	0.11
SHENTEL:	35.65	0.90

PROGRAMMING

21ST CENTURY FOX:	29.19	0.39
AMC NETWORKS:	60.46	0.96
CBS:	54.02	0.29
DISCOVERY:	26.09	0.50
DISNEY:	99.57	0.57
GRUPO TELEVISA:	25.90	0.81
HSN:	48.75	0.52
LIONSGATE:	21.62	0.28
MSG NETWORKS:	16.90	(0.09)
SCRIPPS INT:	65.09	1.12
STARZ:	27.96	1.60
TIME WARNER:	72.64	0.27
VIACOM:	49.62	0.03
WWE:	18.88	0.32

TECHNOLOGY

ADDVANTAGE:	1.81 0.01
AMDOCS:	
AMPHENOL:	
APPLE:	
ARRIS GROUP:	
AVID TECH:	
BLNDER TONGUE:	0.40 0.01
CISCO:	
COMMSCOPE:	
CONCURRENT:	
CONVERGYS:	
CSG SYSTEMS:	
ECHOSTAR:	
GOOGLE:	693.71 1.99

Stockwatch			
Company	06/20 Close	1-Day Ch	
		•	
HARMONIC:	2.98	0.04	
INTEL:		0.41	
INTERACTIVE CORP:		0.75	
LEVEL 3:		0.33	
MICROSOFT:		(0.06)	
NETFLIX:		(0.65)	
NIELSEN:			
SEACHANGE:		0.03	
SONY:			
SPRINT NEXTEL:			
SYNACOR:	3.40	(0.13)	
TIVO:			
UNIVERSAL ELEC:			
VONAGE:			
YAHOO:			

TELCOS

AT&T:	40.78	0.05
CENTURYLINK:		0.11
FRONTIER :	5.17	0.06
TDS:		0.31
VERIZON:	53.76	(0.02)

MARKET INDICES

DOW:	17804.87	. 129.71
NASDAQ:	4837.21	36.88
S&P 500:	2083.25	12.03



CFX TECH by Joyce Wang

The Future of Network Security

Steve Goeringer, principal security architect at Cable-Labs, talked to us about network security challenges as more online services become available. And as it turns out, there are many. Some relate to being able to prove user identity and also verify that devices and software are exactly what they appear to be, according to Goeringer, noting broadband and WiFi networks face the same challenges. He said cable's DOCSIS technology includes strong security measures to "ensure network operators can be confident that cable modems are authorized and that cable modems use the intended software." Two key controls that enable these features are device certificates and secure software download. With more data running on WiFi, some WiFi network operators are starting to use similar approaches to those of DOCSIS, Goeringer said. An example is the Wi-Fi Alliance's Passpoint 2.0, which CableLabs has helped specify. Another security feature, end user identity, isn't as strongly implemented, with Goeringer pointing out that most networks still use basic login IDs and passwords. "More creative and effective mechanisms are being developed now, and that will help users protect their broadband and wireless experiences," he said. The good news is cable networks today are "reasonably secure" if they are implemented based on DOCSIS specifications, he said, with strong encryption linking connecting devices to network hubs. However, a device in the customer's home or business network could be compromised through phishing if home routers or devices aren't sufficiently secured. CableLabs is working on specifications to help ops secure and manage routers and access points within the home and business networks, said Goeringer. With the increase in bandwidth and the number of connected devices, he expects an increase in the scale and frequency of security attacks. Adaptive networking based on software defined network (SDN) and network functions virtualization

(NFV) look promising in dealing with DDoS (a type of security attack where multiple compromised systems are used to target a single system) and other security issues, Goeringer said. Kyrio, a CableLabs subsidiary, is looking to expand these solutions for service providers.

Small Cell Research: As mobile carriers in the US and worldwide look to upgrade to 5G technology, cable sees small cell and backhaul technology as an opportunity to work with wireless carriers to provide ubiquitous connectivity. IHS forecasts that the global outdoor small cell backhaul market will reach \$2.2bln in 2020, with a 5-year compound annual growth rate of 80%. While small cell deployments were off to a slow start, they are gaining significant traction because of mobile operators' need to enhance saturated macro-cellular networks and improve the mobile broadband experience by adding capacity through dense low power node deployments, the research firm said. It noted network operators are currently testing and field trialing many outdoor small cell and backhaul options in dense urban areas to choose technologies, products and vendors, as well as to develop operational procedures. The issues of urban deployment are gradually being resolved, and more mobile operators are now starting to make their initial, albeit modest, deployments. Meanwhile, although most deployments to date have been in urban and metro areas, there is life in the rural segment too. IHS said EU operator Vodafone and other service providers are using small cells for outdoor coverage in rural areas, where the backhaul is not difficult and usually wireline. "The real ramp in outdoor small cell deployments will begin in 2017, with steady growth through 2020 as deployments proliferate. Consequently, a cumulative \$6.4 billion will be spent worldwide on outdoor small cell backhaul equipment between 2016 and 2020," IHS said.

Got tech news? Reach out to Cablefax Tech editor Joyce Wang at jwang@accessintel.com

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