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This Week's Stories

These Are The Tech Stories We're Most Excited To Follow In 2017

December 29, 2016

With each passing year, we're left to marvel at where we are, and how we got here. 2016 was no exception.

We didn't tackle the consumer-ready hoverboard just yet, but other childhood fantasies like rocket packs and virtual reality are already here, and rapidly improving. I have no doubt we'll get that affordable hoverboard at some point, but for now, let's just take a second to appreciate where we are, and what's on the horizon for 2017.

In no particular order (and with dozens of omissions), here's what we're most excited about for the coming year.

Drone delivery

If there's a break-out success story of 2016, it's drones. Starting with a major uptick in sales during the 2016 holiday season, drones reached critical mass during 2016. After selling over 700,000 drones last year, analysts predict we'll see 2.5-million sold in 2016, and over 7-million by 2020.

But it's not consumer drones we're excited about. Google, Amazon, and UPS (among others) all tested drone delivery in 2016. Unfortunately, it didn't lead to a world where I could do my Christmas shopping online and have it delivered by an unmanned aerial vehicle, but fear not, 2017 is the year. From burritos to toothpaste, each of the companies testing autonomous delivery have big plans for 2017, and if we can fix that pesky tree problem, this could be the year.

Level-3 autonomous vehicles

For all the excitement about self-driving cars in 2016, 2017 offers even bigger promise. As cool as it was to see a Tesla drop a man off at work and then go park itself, this is still only level-2 autonomy.

According to the Society of Automotive Engineers (SAE), level-2 autonomy occurs when the automated systems are capable of handling most of the driving. Steering, braking, and acceleration are all handled by the vehicle's systems, although the human driver must be ready to take over if needed.

On the four-point scale used to measure autonomous vehicles, Tesla — which offers arguably the most advanced software of any semi-autonomous vehicle — has still just hit the half-way point.

2017 promises to bring us our first glimpse at level-3.

Again according to the SAE, a level-3 autonomous vehicle is capable of fully autonomous driving in most cases. Human assistance may be required to handle unfamiliar environments or bad weather, but by and large, this is an autonomous vehicle. Level-4, in case you were wondering, is essentially a car that turns humans into cargo. Aside from entering a destination or plotting a route, your input really isn't needed.

OLED is coming

Some would argue it's already here, but I have an iPhone and a MacBook Pro (the Touch Bar doesn't count). #WTFApple?

Flagship's from Huawei, Xiaomi, Samsung, Google, and — don't adjust your monitor — BlackBerry, have already rolled out the superior display technology. Apple? Well, maybe the iPhone 8.

For those that haven't had the luxury of seeing an OLED-equipped smartphone (AMOLED, actually), let me tell you what you're missing. The most talked about improvement over LCD screens resides in discussions around color gamut. Put simply, colors are not only more vivid on the OLED, but they display a more accurate representation of the color than their LCD counterparts. You'll also see whiter whites and darker blacks, leading to improved contrast without the light bleed issues of LCD.

It's not just smartphones, either. Laptops, desktop monitors, and televisions are all entering the OLED age. If you have a chance to catch a demo of a 4k OLED TV with HDR, you should definitely jump at the opportunity. While they're still too expensive for most of us to buy, the price will come down as the technology improves, and 2017 should see a handful of additional smartphones and laptops add the new-and-improved technology.

As for televisions and computer monitors, I doubt they'll drop to a price point that begs for an upgrade from existing LED technology. Maybe 2018.

The maturation of VR

The race for the perfect personal assistant heats up

In the beginning, Google, Amazon, Apple, Microsoft, and others created smart assistants in a sort of vacuum. The closed approach kept the assistant functioning exactly as they had intended, but stifled innovation by limiting its access to those that could have improved upon it.

2016 brought us the first taste of what digital smart assistants may offer down the road. Each of the major players in the space as opened their technology up to interested developers — albeit at varying levels — and introduced partnerships to the equation. Even Apple, the company notorious for walling off anything proprietary, took steps in the right direction by opening Siri up to developers. Developers responded by improving Siri more this year than Apple did over the course of her short life.

2017 promises to bring even more innovation and perhaps an even bigger opening for developers.

The beginning of the end for disease

Facebook founder Mark Zuckerberg famously promised most of his enormous wealth to philanthropic causes. In 2016, he made good on the first of these massive donations by pledging \$3 billion to help wipe out disease over the next 100 years. The money will roll into a new arm of Zuckerberg and wife Priscilla Chan's charity, the Chan Zuckerberg Initiative (CZI). Dubbed, BioHub, the medical arm of CZI is a collaborative effort with the University of California San Francisco, and University of California Berkeley. The plan is to open a \$600 million research space in San Francisco's Mission Bay and continue funneling in the remainder of the \$3 billion pledge over the next decade.

The plan is simple: find new and innovative ways to eradicate disease and expand upon promising current projects. Others are embarking on similar missions through smart use of technology.

IBM and Google are already pouring millions into programs that pour over medical reports and anonymized patient records looking to analyze data and map the most effective treatment methods. Using supercomputers like Watson and DeepMind, the companies hope to provide oncologists with

highly-detailed treatment plans in a matter of minutes, or seconds, through rapid analysis of past diagnoses and treatment.

The two aren't alone in using machine learning and artificial intelligence to tackle disease.

2017 brings with it a new hope for the treatment and, eventually, eradication of disease. Robots will lead the way.

thenextweb.com

Bid For Access To Amazon Echo Audio In Murder Case Raises Privacy Concerns

December 28, 2016

"The tug of war over access to the audio, which was reported by the website the information, began when the police started to investigate the death of Victor Collins, who was found on Nov. 22, 2015, in a hot tub at the home of James Bates, according to court records."

In a move that promises to raise new questions about electronic privacy, detectives investigating a murder in Arkansas are seeking access to audio that may have been recorded on an Amazon Echo electronic personal assistant.

So far, the online retail giant has resisted demands by the police and prosecutors in Bentonville, Ark., for the information. Without addressing the specifics of the case, Amazon said in a statement that, as a matter of course, it "objects to overbroad or otherwise inappropriate demands."

The tug of war over access to the audio, which was reported by the website the information, began when the police started to investigate the death of Victor Collins, who was found on Nov. 22, 2015, in a hot tub at the home of James Bates, according to court records. Investigators discovered signs of a struggle, including spots of blood, broken bottles and pieces of the spa that were on the ground.

Detective Cpl. Josh Woodhams of the Bentonville Police Department wrote in an affidavit that he found an Amazon Echo on the home's kitchen counter. The voice-activated device has seven microphones, and is equipped with sensors to hear users from any direction up to about 20 feet. Among other things, it can play music, make to-do lists, stream podcasts and provide real-time news and information.

In February, Mr. Bates was charged with murder, and as part of the investigation, the police sought from Amazon "electronic data in the form of audio recordings, transcribed words, text records and other data" captured by the Echo.

The request has raised concern among some right-to-privacy supporters.

Marc Rotenberg, president of the Electronic Privacy Information Center, said in an email that there should be a "clear legal standard that governs law enforcement access" to machines that make up what has become known as the internet of things. The reference is to the constellation of devices — such as cameras, cellphones and appliances — connected to the internet.

But Lynn Terwoerds, the executive director of the Executive Women's Forum, which founded and sponsors the Voice Privacy Alliance, said in an email that the request for the information was built on a faulty premise.

She said the Echo is always listening for a "wake word" — Alexa, Amazon or another customizable term — and records only what is said after it has been activated. She said it has 60 seconds of recorded sound in its storage. "What this 'always listening' means is that the device is not eavesdropping and interpreting everything you're saying," Ms. Terwoerds wrote.

Once it detects the wake word, according to Amazon, the Echo starts streaming audio to the cloud, where it is secured until the customer permanently deletes it.

The case raises “serious privacy concerns with this kind of nonspecific warrant,” Ms. Terwoerds said, adding, “We have to fight against the myth of Echo listening in on our every word and sending that data to Amazon — it’s simply untrue.”

Jon Simpson, the police chief in Bentonville, which, by car, is about three hours northwest of Little Rock, referred questions to Nathan Smith, the prosecuting attorney in Benton County. In an email, Mr. Smith said Amazon had yet to fully comply with two requests, although he said it had provided “some very limited subscriber information.”

The company said in a statement that it would not “release customer information without a valid and binding legal demand properly served on us.” Mr. Smith said that officers had followed the proper procedure in seeking a search warrant from a judge based on probable cause, and that he hoped Amazon would comply and that no further steps would be necessary.

While many right-to-privacy supporters have expressed interest in the request, Mr. Smith said the case was “really about seeking justice for the victim.” He added that it was the responsibility of the police to seek the data to determine its relevance to the investigation. A lawyer for Mr. Bates did not respond to an email and a phone call seeking comment.

The Arkansas case is reminiscent of an episode in which the federal government sought to legally compel Apple to unlock an iPhone used by a gunman in a shooting in San Bernardino, Calif., last year that killed 14 people. The case became contentious as Apple refused to assist the authorities, prompting a debate about whether privacy or security was more important. Federal officials said in March that they found a way to unlock the phone without help from Apple.

The lack of clear-cut legislation over who is legally entitled to the data from such devices means these kinds of cases will continue to surface, Mark A. Testoni, the president and chief executive of SAP National Security Services, which helps agencies track those suspected of terrorism through open source data, said in an interview.

“It’s such a massive gray area,” he said.

nytimes.com

Top Tech Trends Of 2016: The Good, Bad, And Noteworthy

December 27, 2016

Over the course of 2016, businesses, governments and individuals alike saw both new threats and new opportunities emerge as information technologies continued to advance. One top trend -- the growing number of cybersecurity attacks -- already causes trillions of dollars in losses, with the damage expected to hit \$6 billion by 2021, according to a recent report from Cybersecurity Ventures.

Meanwhile, continued developments in cloud computing along with accelerating advances in machine learning and artificial intelligence (AI) in 2016 increased pressure on organizations to transform for the new digital business era.

Other tech trends that led the news and the markets this year included ongoing improvements in self-driving car technology, more widespread adoption of wearable computing devices and advances in virtual-reality (VR) and augmented-reality technologies.

Cybercrime Getting Worse

Financial fallout and other impacts from cybercrime continued to rise dramatically in 2016, with Russia's links to pro-Trump hacking dominating headlines in the wake of November's U.S. presidential election. Other major hacks revealed this year included attacks on Dropbox and Yahoo, the last of which still threatens to deep-six Verizon's acquisition plans for that company.

The use of ransomware, such as Locky, also intensified. Earlier this month, the security firm Malwarebytes reported that the U.S. in particular was a prime target for such attacks, accounting for 26 percent of all ransomware incidents globally. The growing market for consumer security prompted IT security giant Symantec to announce in November that it was acquiring the identity theft protection firm LifeLock for \$2.3 billion.

Artificial Intelligence Getting Smarter

Almost all of the major technology companies made big announcements related to artificial intelligence in 2016. For instance, when Google announced the launch of its new Pixel and Pixel XL Android smartphones in October, CEO Sundar Pichai said the devices' new built-in smarts heralded the shift from a mobile-first world to one led by AI.

Apple, which recently published its first research paper on AI, said its updated operating system, iOS 10, which came out in the fall, would give its customers new levels of artificial intelligence-enabled computing capabilities.

Over the past 12 months, Microsoft revealed that it would be collaborating with Intel to develop new AI features for customers, Facebook took the wraps off a new deep-learning system called Caffe2Go that can digitize videos in near-real time and Samsung said its next flagship phone would come with a built-in intelligent digital assistant. And in September, a number of companies, including Amazon, Facebook, Google, IBM and Microsoft, launched a new non-profit called the Partnership on Artificial Intelligence to Benefit People and Society.

Self-Driving Cars Advancing

Transportation also continued to get smarter in 2016, with both car makers and technology companies aiming at the market for autonomous vehicles.

Uber generated plenty of headlines over the year, whether it was for acquiring the self-driving truck startup Otto for \$680 million in August, or losing its autonomous car testing permit in California after multiple reports about test-related traffic violations. Tesla also sustained a blackeye after reports emerged in the summer that one of its customers was killed in a crash while operating its self-driving car technology.

However, autonomous car technologies continued advancing, with new products and acquisition announcements from companies, including AMD, Qualcomm, Google parent company Alphabet, Ford and GM, which early in the year invested \$500 million in the ride-sharing app company Lyft.

Cloud Computing Everywhere

The market for cloud-based computing also kept growing in 2016, with the analyst group Gartner Inc. projecting in September that demand for public cloud services alone would expand by more than 17 percent by the end of this year. Cloud adoption was being led by desire for IT modernization, but cost savings, innovation and agility were also reasons for organizations to continue moving to the cloud, according to Gartner.

Among the year's top cloud announcements: Google's plan to acquire the API management firm Apigee, revealed in September; a series of new cloud service launches from Salesforce; cloud-based updates from Adobe; a new cloud-first, mobile-first direction for Microsoft's SharePoint business platform; and several major acquisitions by Oracle aimed at boosting that company's position in customer relationship management and cloud services.

Converged Infrastructure, Collaboration, VR and More

Other 2016 tech trends included an ongoing shift to converged infrastructure with new announcements from Dell, VCE/EMC, Microsoft and Salesforce; growing collaboration capabilities enabled through new offerings from Google, Facebook, Apple and SAP; new software and hardware for wearables from Huawei, Google and Facebook/Oculus; and an emerging generation of virtual- and augmented-reality technologies from companies ranging from Google and Microsoft to Samsung and Intel.

mobile-tech-today.com

Products & Services

Mobile Payments Expected To Continue Climbing In 2017

December 28, 2016

"Fingerprint scanning is expected to remain the dominant biometric used, with more than half of smartphones shipped in 2017 incorporating the technology. However, iris scanning is expected to develop in the coming year and be made available on high-end smartphones."

Companies like Apple, Samsung, and Google worked hard to build their mobile payments bases this year, and could stand to make more gains as the global mobile payments market grows even further in 2017.

According to a new TrendForce forecast, the worldwide market for mobile payments is expected to grow more than 25 percent through the end of 2017 to reach \$780 billion. And, the firm noted, the three aforementioned companies are well-placed to take advantage of that expansion.

"Among the smartphone makers that are also developing their mobile payment businesses this year, Apple and Samsung are two brands that have an advantage over their competitors," Kelly Hsieh, senior research manager at TrendForce, said. "Since Android has over 50 percent of the mobile OS market share worldwide, Google also has an opportunity to build up an extensive mobile payment ecosystem."

Hsieh noted Google this year intensified the international expansion of its Android Pay platform, most recently via a December deal with major Japanese e-commerce and Internet company Rakuten. Thanks to the deal, Hsieh said Android pay users can now access Rakuten's e-money platform Edy, which is accepted in major restaurant and retail chains including McDonald's, Family Mart, Lawson, and Domino's Pizza.

TrendForce, however, noted NFC chips are expected to become the mainstream solution in mobile payments – which means Samsung's NFC-compatible Samsung Pay solution is ahead of the game. Chinese manufacturers like Huawei and Xiaomi have already launched smartphones with NFC technology this year, and in 2017 more than 60 percent of smartphones shipped worldwide are expected to be NFC-compatible, TrendForce predicted.

In terms of mobile payment verification, TrendForce said fingerprint scanning is expected to remain the dominant biometric used, with more than half of smartphones shipped in 2017 incorporating the technology. However, iris scanning is expected to develop in the coming year and be made available on high-end smartphones.

wirelessweek.com

Flurry: 44% Of Devices Activated During Christmas Week Were From Apple, 21% From Samsung, And 3% From Huawei

December 27, 2016

“New device activations result in more apps being downloaded and installed. More specifically, Flurry tracked two times the number of app installs on Christmas Day compared to an average day in the first three weeks of December, slightly down but in line with last year.”

Every year, Christmas week brings in the highest number of new device activations and app installs. 2016 also had Hanukkah to help, but the main result was the same: Apple dominated the results.

Just under half of device activations (44 percent) were for an Apple device this Christmas, down from 49.1 percent last year. One in five were Samsung devices (21 percent, up from 19.8 percent), with the rest of companies settling for single digits under 5 percent.

Flurry’s data is global, although it is naturally skewed towards those that use its platform. The Yahoo-owned mobile analytics and advertising firm supports nearly 250,000 developers, reaching more than 800,000 apps across more than 2 billion devices with 10 billion sessions every day. This is the basis used to determine which devices were purchased and which apps were the first to be downloaded and installed.

Microsoft unsurprisingly fell out of the list, while Huawei showed up to the party for the first time. The Apple-Samsung duopoly was as stark as ever.

Keep in mind that throughout the year, Samsung dominates in phones and Apple wins in tablets. Aside from Samsung, Asian manufacturers typically don’t see much of a jump around this time of year, as Christmas is not the biggest gift-giving day in their home markets — Singles’ Day is much bigger in China, for example. Flurry also noted that Google struggled to make a mark with its new Pixel and Pixel XL this holiday season.

As for the form-factor breakdown, Christmas 2016 kept up a trend of the past few years: a big jump in the number of phablets activated. In the week leading up to Christmas, 37 percent of new device activations were phablets (compared to 27 percent in 2015, 13 percent in 2014, and just 4 percent in 2013)

In 2013 and 2014, the rise of phablets came at the expense of tablets. In 2015 and 2016, smaller-sized phones took the biggest hit.

Unsurprisingly, new device activations result in more apps being downloaded and installed. More specifically, Flurry tracked two times the number of app installs on Christmas Day compared to an average day in the first three weeks of December, slightly down but in line with last year.

venturebeat.com

Emerging Technology

Live 360 Degree Video Launches On Twitter

December 30, 2016

Twitter announced this week that it is introducing a new way to see what’s happening on Twitter — through live 360 degree videos. In what many believe is a competitive move to counter Facebook’s moves into video, Twitter is seeking to keep its edge as the place for breaking news and live events.

Given the widely reported comment from Mark Zuckerberg who believes videos are the future of Facebook; it seems more than wise for Twitter to move quickly. Earlier this year, Zuckerberg told BuzzFeed News that “We’re entering this new golden age of video. I wouldn’t be surprised if you fast-

forward five years and most of the content that people see on Facebook and are sharing on a day-to-day basis is video.”

But the important question for many users is how exactly does it handle SMS? Does it just stand in for your phone’s default text message app, or does it sync texts with your Skype account and with Skype’s desktop app? According to Microsoft blog MSPowerUser, which first spotted the app, it’s the former: Mingo will send and receive texts from your phone, but it won’t sync them anywhere. This is a feature Microsoft has previously called “messaging everywhere,” and which is now known as SMS relay. (Apple calls this Continuity.) It’s currently only available if you have the Skype Preview app for the latest Windows 10 Insider preview build and a phone running Windows 10 Mobile. So, you know, it’s not exactly widespread.

Alessandro Sabatelli, Director AR and VR at Twitter, shared the 360 video news this week: “Starting today, you can check out live, interactive 360 videos from interesting broadcasters and explore what’s happening with them... When you see a video marked with a LIVE 360 badge, you can interact with it to change what you see by moving your phone or swiping the screen – all while watching live,” he said.

According to Sabatelli’s post, anyone on Twitter and Periscope can watch the live 360 videos, however, only select partners can share live in 360 videos via Periscope.

But Twitter and Facebook are far from the only players using or launching 360 video, both edited and live. Forbes and many in the media landscape also are looking to the visual side of storytelling to engage with what I believe is trans-generational – the mobile user. People that are far more video-minded than average. You can read how Forbes is adapting in Lewis DVorkin’s post: Inside Forbes: 2 Tradition-Busting Diagrams Reveal What We’re Doing Next – And Other Newsrooms Should, Too.

As Twitter’s news about live 360 video was launching this week, I was meeting with Maria Fernanda Lauret, VR Stitcher and Editor for Huffington Post RYOT, to talk about some of the finer points between going truly “live” and editing news and feature stories to publish as quickly as possible. Maria helps put the audience into virtual reality news stories and documentaries. She has made hundreds of short news videos for RYOT News and has worked in VR projects with Greenpeace, Samsung, Hulu, Walgreens and more.

These caveats aside, Skype Mingo is an interesting peek at the direction that Microsoft could take its premier communications app. And turning Skype into a lightweight messaging hub on Android would put also Microsoft ahead of Google. Google’s own Allo app (released in September) does let you send and receive SMS messages, but only through a relay phone number — not your own. Despite its somewhat unusual name, Mingo could be going places.

“Stitching is the practice of using footage from different cameras in a VR rig to generate a single panoramic image. In order to combine the individual clips to generate 360° videos, we need to synchronize the footage and create a rough stitch of it. It means that even if the image does not look perfect yet, you will have the chance to fix it once you are sure this shot will be used in the final edit of the video,” she said. Her job is to make their work seem invisible — the less noticeable the stitching lines and discrepancies you can see in a 360° shot, the better.

forbes.com

Mergers and Acquisitions

Facebook Acquires Eye Tracking Company The Eye Tribe

December 28, 2016

Facebook has acquired The Eye Tribe in a move that’ll likely see the Danish startup’s eye tracking technology being used to improve the virtual reality experience through Oculus. A Facebook spokesperson confirmed the acquisition but declined to cite the terms of the deal.

Started in 2011 by four students from the IT University of Copenhagen, The Eye Tribe set out to make eye tracking more accessible to the masses. The company promises that it can enable eye control for consumer devices “that enables simplified and enhanced user experiences,” which makes it a good fit for Facebook’s Oculus division.

Rumors of The Eye Tribe’s acquisition came earlier this week through tech evangelist and pundit Robert Scoble.

The Eye Tribe started out with a developer-focused product, selling 10,000 units of its eye-tracking system to embed into hardware devices. It also has a consumer product line, and this year it launched a prosumer version called The Eye Tribe Tracker Pro for \$199. This version lets anyone affix a device to a laptop or other computing machine to monitor your eye movement as you do whatever you have to do — Want to read sheet music on a monitor? Need to securely log into the computer? Scroll down a page? All of this are billed as feasible through The Eye Tribe.

The acquisition appears to be squarely for Oculus’ benefit versus the rest of the Facebook team. Having sophisticated eye tracking technology is certainly important: If a virtual reality headset can’t track your movement, how will it know what to display? Oculus founder Palmer Luckey reportedly called eye tracking a “critical part” of VR technology’s future. He told Upload VR in 2015:

“We’re researching everything. I’m very, very in tune with what’s going on in eye tracking research in Oculus.” When pressed for more information Luckey said, “It’s definitely not being ignored, but I can’t say much about it.”

Even with Luckey’s transitioning role, Oculus hasn’t shifted away from this thinking. Nor have other companies such as Google, which picked up Eyefluence, a competitor to The Eye Tribe that had raised \$21.6 million in venture capital. By comparison, Facebook purchased a company that raised \$5.32 million in funding from investors such as Startup Bootcamp and Richard Sanguini, including grant money from The Danish National Advanced Technology Foundation.

venturebeat.com

Why Tech Merger Mania Is Possible In 2017 Under Trump

December 26, 2016

“The most talked-about potential 2017 deal revolves around T-Mobile, the third-largest wireless carrier and the company that has added more subscribers over the past few years than the rest of the industry combined.”

The past few years have been extremely busy in the world of mergers and acquisitions, setting records around the world. In tech, the semiconductor industry has rapidly consolidated while mid-sized players like EMC and LinkedIn were gobbled up by larger peers. But there’s still some potentially massive deals to come in 2017 that may not have even been imaginable in 2016.

Call it the Trump bump for tech M&A.

Under President Obama’s watch, regulators at the Department of Justice’s antitrust division and the Federal Communications Commission stepped in to block a bevy of combinations that they argued would reduce competition and hurt consumers. The moves stopped Comcast from buying Time Warner Cable, and prevented T-Mobile from going to AT&T or Sprint.

Now President-elect Donald Trump is signaling with his transition appointments and general pro-business stance that a lot more combinations may be acceptable. David Higbee, an M&A lawyer at Hunton & Williams who worked in the Bush administration, is helping to oversee Trump’s Justice Department transition, along with economist and Republican Federal Trade Commission member Joshua Wright. Both are seen as tilting much more pro-merger than Obama’s appointees. The same is true of Trump’s three transition team members overseeing the FCC.

Further fueling merger mania, Trump is also widely expected to work with the Republican majority in Congress to slash the tax on corporate overseas profits. Companies like Apple and Microsoft have accumulated hundreds of billions of dollars in overseas profits that can't be brought back to the United States without a 35 percent tax. Trump could slash the rate to 10 percent, providing the biggest tech companies with a lot of dough to make deals.

Bottom line? Telecom industry analyst Simon Flannery at Morgan Stanley is hardly alone in expecting "a prolonged period of M&A activity given the more benign regulatory outlook."

The most talked-about potential 2017 deal revolves around T-Mobile, the third-largest wireless carrier and the company that has added more subscribers over the past few years than the rest of the industry combined. Not only could Sprint dream of buying T-Mobile under Trump, but big cable companies like Comcast or Charter Communications, which plan to enter the wireless market next year, may also be bidders. If the bidders want to go after a smaller target U.S. Cellular could be in play, as well.

Analysts think the cable players may be more likely to make a deal at this point than Sprint and its majority owner Softbank Group, already coping with massive debt from earlier moves.

And T-Mobile's outspoken CEO John Legere says his talks with tech giants have convinced him that the ultimate landing spot for his company may be in Silicon Valley with the likes of Google or Facebook.

Further consolidation could also come to the data center market, where current antitrust overseers might oppose acquisitions by the biggest companies. But under Trump, while Google, Microsoft, and Amazon dominate, smaller players like Equinix, Digital Realty Trust, and CyrusOne could be fodder for acquisitions.

The Trump hints have some analysts dreaming much bigger. Perhaps Sprint and T-Mobile will merge, while also picking up Dish Network, analyst Timothy Horan, at Oppenheimer & Co, hypothesized earlier this month. The triple combo could "create a discounted quad-play service company with over 300 MHz of spectrum," Horan wrote. That in turn could lead Comcast and Verizon possibly to merge and AT&T then might buy parts of CenturyLink, Frontier Communications, or Windstream, Horan said.

Verizon's planned \$4.8 billion deal for Yahoo isn't going well after a second major hacking revelation, so the carrier could be in the market for other acquisitions to bolster its digital advertising strategy, analysts say. Possible targets for CEO Lowell McAdam could include music service Pandora Media or struggling social network Twitter, BTIG Research analyst Walt Pieczyk told Bloomberg News.

Other combinations that have been tossed about seem less plausible. Even if pro-business regulators allowed Amazon to buy Barnes & Noble, why would the House of Bezos want to add the huge and ailing book chain to its assets? And while Apple could get a huge tax windfall of repatriated cash under Trump, buying rumored targets Netflix or Tesla would cost a fortune and wreck its price-to-earnings ratio.

What about the biggest deal announced in 2016? On the campaign trail, Trump promised to block AT&T's \$109 billion Time Warner acquisition. "AT&T is buying Time Warner and thus CNN, a deal we will not approve in my administration because it's too much concentration of power in the hands of too few," Trump said in a speech in October.

But signs continue to emerge that Trump may be backing off the pledge. AT&T officials who talked with transition officials came away confident the deal could survive, the Financial Times reported earlier this month.

In the era of Trump, it seems many more deals are within the realm of possibility—even ones the President-elect himself has once opposed.

venturebeat.com

Industry Reports

Netflix Vs. Amazon In 2016: A Big Year For 2 Video Streaming Giants

December 29, 2016

If the year 2015 saw Netflix and Amazon go head to head in the video-streaming realm, this year we've seen more of the same, as the two companies ramped up their respective efforts to capture the cord-cutting video generation.

Here, we take a look back at some of the notable developments in the worlds of Netflix and Amazon in 2016.

Going global

In January, Netflix launched in 130 new markets, taking the service truly global and giving the company a serious leg up on rival Amazon, which was limited to just a handful of countries.

That remained the case for nearly a year, until Amazon revealed it was launching Amazon Prime Video in more than 200 markets for \$6 per month. Amazon's big international push was perhaps more notable, because its video-on-demand (VoD) offering had traditionally differed from Netflix in one key way — it was bundled alongside Amazon's broader Prime subscription service, which costs \$99 per year.

I've long argued that Amazon should spin Prime Video out as a standalone subscription service, like Netflix, and that's exactly what it did in April. Prime Video was already available as a standalone service in the U.K. and Germany (though it was hard to find), but spinning out the video service in Amazon's domestic U.S. market laid the foundation for what was to come — a global VoD service available to just about everyone, everywhere.

Content is king

For Amazon, going global was pretty much imperative, given its aspirations in the original content realm. The company had invested a reported \$250 million in the talent behind the BBC's Top Gear, and in November it launched a similarly themed show called The Grand Tour, starring Jeremy Clarkson, James May, and Richard Hammond.

The Grand Tour represents Amazon's biggest content investment to date, so to capitalize on the popularity of the trio of presenters, Amazon needed to get it in front of as many eyeballs as possible — and a global rollout of Amazon Video was inevitable.

Both Netflix and Amazon continued to boost their slate of original or exclusive titles throughout 2016. Shortly after Amazon announced its big arrival on the international scene, Netflix announced it had secured a major content deal in India, after signing up Shah Rukh Khan's Red Chillies for all past and upcoming films.

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"What is becoming increasingly clear is that Netflix and Amazon will continue to evolve in tandem from a features perspective. Where they will seek to differentiate themselves is in the realm of content, and this is where we'll likely see some interesting developments in 2017 and beyond."

Elsewhere, Netflix extended its deal with DreamWorks Animation to add a ton of exclusive content to its global streaming service. But more than that, the company debuted a number of great original shows, including *Stranger Things*, *The Crown*, and *The OA*.

Netflix's Emmy Award nominations grew from 34 to 54 this year, while Amazon's grew from 12 to 16. But nominations don't automatically convert into wins — Netflix scooped up a personal record nine awards, while Amazon took home five. So Netflix won more awards, but Amazon's win-to-nomination ratio was higher.

However you slice and dice things, both Amazon and Netflix will continue to invest in original and exclusive content. It's the only thing that differentiates one VoD service from another to any significant degree, so it's something we'll see both companies plowing cash into in 2017 and beyond.

Own-brand and exclusive content is also what gives both Netflix and Amazon an easier path into their expanded operations. With third-party content, owners of the rights can dictate things like whether content is available offline, as they normally negotiate terms on a market-by-market basis — a complicated process that consumes significant resources for VoD companies. But when the companies own the rights themselves, the problem vanishes — they can broadcast what they want, in whatever country they want.

Downloads

Arguably one of Netflix's biggest pieces of news in 2016 was its decision to finally offer its users offline access.

The company had previously claimed that it would never allow users to download shows and movies for offline access, but with its decision to expand into new markets, Netflix was forced to reconsider. Wi-Fi and 4G internet aren't omnipresent in many developing markets, so to fulfill its obligations to customers, Netflix had to start offering downloads.

Netflix is adopting the same approach Amazon did when it opened up to offline access last year — only some titles will be available to download, including its own slate of content, such as *The Crown*, *Stranger Things*, *Orange is the New Black*, and *Narcos*. There is some third-party content on that list, but it's limited.

Other factors

Way back in December of last year, Amazon launched a new program allowing Prime subscribers to add additional VoD subscriptions to their annual membership — at an extra cost. Some notable brands were on board for the launch, including Starz and Showtime, but earlier this month HBO and Cinemax were added to the mix, for \$15 and \$10 a month, respectively.

This was a major scoop for Amazon and served as one more big reason for cord-cutters to sign up to Prime — they can garner contract-free access to their favorite channels without a cable subscription.

Building off the back of this development, in May of this year Amazon introduced a new platform that lets creatives and video-makers upload their own videos to rent or sell through Amazon Video. With Amazon Video Direct (AVD), Amazon is looking to increase the amount of content available through its service, giving creators the ability to make their titles ad-supported for free access or to earn royalties as part of Amazon's \$99 Prime membership.

With Amazon focused on becoming a platform for other subscription-based services, Netflix launched its Recommended TV Program globally, having introduced it to the U.S. a year earlier. It's basically Netflix's way of letting TV-makers align themselves with the video-streaming giant and letting

customers know whether a TV supports Instant On and TV Resume functionality, features that let TVs “wake up” quickly and “remember” where you left off in an episode.

To the future...

Both Netflix and Amazon evolved in 2016, and it’s interesting to note the similarities between the two services as they increasingly converge. In 2015, Amazon gained offline access, and a year later Netflix followed suit. At the start of this year, Netflix launched globally in nearly every market; a year later Amazon did the same.

What is becoming increasingly clear is that Netflix and Amazon will continue to evolve in tandem from a features perspective. Where they will seek to differentiate themselves is in the realm of content, and this is where we’ll likely see some interesting developments in 2017 and beyond.

Word on the street is that Amazon is chasing premium sports packages and has been in talks with a range of sports leagues, with a view to acquiring broadcast rights. That would be a major game changer, as live sports is something that consumers are insanely keen to subscribe to.

But it’s also worth remembering that as both Amazon and Netflix continue to bolster their respective content offerings, their competition will serve to give viewers more reason to subscribe to both streaming services.

So for 2017, it may not be a case of “Netflix or Amazon Video?” but rather a case of “Netflix AND Amazon Video.”

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How Microsoft Dominated The Tech Scene In 2016

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Microsoft was in the news for all the right reasons throughout 2016. It beat expectations and made a ton of money in FY16, racked up more than 400 million Windows 10 installs by the end of September, launched a rival to Slack and even a program to create low-cost VR headsets.

Its achievements for the year don’t end there: Under the able leadership of CEO Satya Nadella, who’s been at the helm since early 2014, the company has come to embrace the cloud, warm up to the open source community and create exceptional hardware and software products.

Let’s take a closer look at the year that was for the Redmond giant:

Windows 10

Let’s be real for a second: Microsoft did a poor job of onboarding people on to Windows 10, pushing the new OS to some machines that weren’t ready for it and forcing updates when they weren’t convenient for users.

Other than that, however, Windows 10 is pretty great. It’s quick, efficient and is a delight to use, especially as it had its teething troubles ironed out steadily after it first launched.

It also received a bunch of useful enhancements with the Anniversary Update, including Windows Ink to let touchscreen users scribble on sticky notes and screenshots, a more powerful Cortana that can be invoked even from the lock screen, the ability to view notifications from your phone on your desktop, deep-linking Live Tiles in the Start menu and improved battery life with Edge.

Microsoft has huge plans for its OS in 2017. The upcoming Creators Update, showcased at an event in October, will bring 3D content creation features to numerous Office apps, as well as an all-new Paint; gamers will be able to broadcast gameplay live from their desktop; MyPeople will let you view texts, Skype chats, and emails from your contacts all in one place.

It's interesting to see Microsoft building out its desktop ecosystem steadily as a place for people to work, be creative and play – previous iterations of the OS only felt like a platform where you had to bring third-party applications to do whatever you needed to. Hopefully, the Creators Update is just the start of such features and functionality for Windows users.

Open source

Microsoft has steadily taken to open sourcing several of its major projects in the recent past, and 2016 saw more of the same. At the start of the year, it open sourced its powerful Chakra JavaScript engine, as well as its Computational Networks Toolkit for building deep learning tools for things like speech recognition.

Later, it open sourced Xamarin – a tool for building cross-platform mobile apps - and PowerShell, its task-based command-line shell and scripting language for managing system tasks.

By September, the company had garnered more open source contributors on GitHub than Facebook, Docker, Google and Angular. That achievement may not be the strongest indicator of how actively open source the company is, but compare this to the scenario a decade ago, when Microsoft wouldn't even have figured on that list at all.

And last month, Microsoft joined the Linux Foundation as a platinum member, which means that the company is committed to helping advance the development of numerous open source projects. That's a far cry from when former Microsoft CEO Steve Ballmer labeled Linux "a cancer" 15 years ago (he's over it now).

Virtual reality and mixed reality

I got a chance to try the HoloLens mixed reality headset at the Junction Hackathon in Helsinki last month and I'm happy to report that the hype is real. It's indeed a compelling product, albeit very much in the works both in terms of the hardware's capabilities (the viewable area is rather small at present) and applications that support it.

That being said, it's commendable that Microsoft not only managed to make the development kit available to tinkerers as scheduled, but was also able to begin selling it to the public and put it to work in space.

It's interesting to see the company take this approach to immersive experiences, and differentiate itself strongly from current-gen VR offerings. We'll have to wait and see if that pays off in helping Microsoft lead the charge with such devices in the future.

It's also worth noting that Microsoft isn't ignoring VR. Instead, it's taking the fight to heavy hitters like Oculus and HTC by teaming up with gadget makers to develop PC-tethered VR headsets that can run on lower-end hardware and come in at less than half the price of current-gen offerings.

While it remains to be seen just how powerful and immersive these will be when they launch next year, but it's good to know that VR fans won't have to pay through their noses and empty an entire room to enjoy virtual reality experiences in the near future.

Surface Studio

Microsoft blew people's minds with its new and first-ever desktop computer, the Surface Studio. Packed to the gills with power and plenty of innovative features that truly are game changers for creators, it stands head and shoulders above anything else out there at the moment.

The all-in-one PC features a 28-inch 4500 x 3000 pixel touch-sensitive display that can rest at a 20-degree angle to allow you to work on it directly with your fingers, the intuitive Dial control or a Surface Pen.

At its premium price point (it starts at \$3,000), it may not see a large audience, but Microsoft has set the standard for the next generation of computers at a time when it was expected that Apple would do so. It's going much farther much faster with touchscreen tech than we'd have expected. The Surface Dial presents a clever new interaction method that we haven't seen before too, and I expect that we'll see more such controller interfaces in the future.

On its own, Microsoft isn't yet a huge hardware rival to Apple; perhaps its biggest fight with the Cupertino brand is in the tablet space with the Surface Pro. But unlike Apple, it has tons of OEMs ready to follow its lead and push the boundaries of hardware on its platform, so the goal might only be to draw people to the capabilities and performance of Windows, for which the Surface Studio seems to be a fitting showcase.

Gaming

Microsoft made a few notable leaps forward in the gaming department as well. While its Xbox One console is still going strong, the company launched the upgraded version, the Xbox One S in June. It brings HDR support, 4K playback capability for streaming video, a 40 percent smaller chassis, an improved controller and now, Dolby Atmos sound.

Far more notable, however, was the company's announcement of Project Scorpio, the next-gen console that's slated to launch during next year's holiday season. It promises true 4K output for games, thanks to eight CPU cores and 6 teraflops of graphics processing power. It'll also support Xbox One titles and accessories.

Another achievement in this domain is the launch of Xbox Play Anywhere, which lets you buy select games on your desktop or Xbox One console and play them on either system, picking up right where you left off and without having to purchase a second copy.

Productivity apps

Microsoft's Office suite has long been one of its big earners, so it's not surprising that the company doubled down on its productivity tools through the year.

For starters, it launched Teams, its rival to Slack's messaging app for groups. Unlike its competition, it's tightly integrated into Office 365, as well as Power BI and Skype with plenty of features for easy communication and collaboration in the workplace.

It also acquired LinkedIn for a whopping \$26 billion. Following the deal in June, the social network for professionals has taken on a number of initiatives to improve its offering, including a redesign and overhaul of its messaging system, the launch of a placement service and a lite mobile site for users in India, and a tool to help you understand salary trends in your geographic area and domain.

Microsoft improved its Office and Office 365 apps a bunch by adding things like support for extensions in Office for Mac, enabling real-time collaboration in Office 365, and bundling Sunrise Calendar's scheduling features into Outlook.

It also launched Flow, a rival to IFTTT with a focus on connecting productivity tools for automating tasks like sending out a customized email when a new SharePoint list item is added.

Failures

Microsoft has yet to figure out the mobile and wearables space. It's struggled for years to grow its market share with Windows Phone (which has sunk from 1.2 percent globally in Q4 2015 to 0.3 percent in Q3 2016, according to IDC), and it's become clear that shiny hardware isn't the answer.

Changing the perception of its platform among existing and new mobile users will pose a monumental challenge, and it isn't yet clear whether that's big on the company's agenda for 2017 and beyond. Nadella said in October, "We clearly missed the mobile phone, there's no question. Our goal now is to make sure we grow new categories."

Microsoft also failed to make a mark in the wearables space. It only really got into fitness with its Band tracker and killed it this year, and hasn't bothered to take on watchOS or Android Wear. That may not be a massive missed opportunity at this point, given the slow adoption of wearables even in 2016, but there's always the danger of being left behind as it did with mobile, should this category take off soon.

Not bad for an otherwise crummy 2016, eh? Microsoft has certainly been fun to watch all through this year, and it'll be interesting to see if it can top this in 2017. There's lots to be done, including figuring out its strategy for mobile hardware, building on its programs for VR and MR, and beating the likes of Slack and Facebook Workplace at their own game.

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