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This Week's Stories

Will No-Checkout Stores Like Amazon Go Be Commonplace By 2025?

February 10, 2017

There is little doubt, many if not all of the concepts from the Amazon Go store will be adopted by A-level retailers over the next 5 years.

Software (And Hardware) Will "Eat" The World

The history of retail is also a history of automation. Slowly the retail shopping and food ordering experience has used technology to become streamline and more efficient over the last 100 years. Most recently these concepts will extend to quick service food and even coffee shops. In fact, the automation for food and beverage preparation will go beyond what we currently see at the Amazon Go store.

Robot Coffee Shop

Cafe X has created an automated barista and a "coffee shop".

Cafe X is 100% automated from the ordering and payment system that can be from within the app or the order/payment screens on the front of the system to the preparation and delivery of the coffee. The system is by far faster than any current coffee shop experience. Once the amortization of the system has been met, the cost to operate this "coffee shop" is orders of magnitude lower than the 2.5 baristas a single system replaces.

Three lines can form simultaneously and the system can deliver the order in record speed. Reviews of the quality have been it meets or exceeds a typical Starbucks similar product. This is a 1-click buying experience that closely aligns the experience we see online or in person with Uber.

Serverless Restaurants From 1902

Vending and automation have been a round for food orderings since the rise of the Automat from Horn & Hardart with roots to a start in 1902.

Horn & Hardart maintained an elegance and promoted the idea of cleanliness and efficiency at their restaurants. The system was perfected in the 1940s and became a centerpiece of New York City life. A patron simply walked into the restaurant, secured a table and took a tray down the line to select food options. The selection was made by inserting coins in the coin receptacle next to the item and press the button to open the door. The payment system was built into the shopping experience telegraphing an Uber-like experience.

The decline of Horn & Hardart started because of inflation, the machines were designed for coins only and as the 1970s inflation pushed prices to dollars, Horn & Hardart did little to try to solve the problem with expensive early bill reading machines. This started a domino effect as food quality dropped to lower costs. This pushed the primary patrons away to other fast food concepts and left it as a sort of discount food establishment. Slowly locations closed and by 1991 they closed the last location.

Your Mom And Dad's Self-Checkout

The first supermarket self-checkout system in the world was installed in 1992 in the Price Chopper Supermarkets in Clifton Park, New York. The system was invented by Dr. Howard Schneider. He was issued United States patents 5083638 and 5168961, granted in 1992. Dr. Schneider called the self-checkout machines "robots," thinking that a new class of "service robots" would perform service work and provide a platform for his ideas on artificial intelligence. The company, Optimal Robotics, was founded in Montreal in 1991 to design, build and market these service robots.

The Optimal Robotics "self-checkout robots" performed well at Price Chopper Supermarkets and in the 1990s was implemented in the Kroger Supermarket chain, and then in many supermarket chains throughout the U.S, Canada, U.K., and Australia. Optimal Robotics went public on NASDAQ in the mid-1990s with a new management and Dr. Schneider leaving the company. Eventually Optimal Robotics sold the technology to NCR and Fujitsu acquired NCR and left the robot/self-checkout business.

These systems were cumbersome and very difficult for most users to operate without assistance. The "Flow" of the transaction was complex and the systems of detection would produce many false errors or miss items that were not properly scanned. There have been many versions of self-checkout but most are routinely avoided by a vast majority of shoppers. Even with the shoppers that do use these systems willingly, they will limit the use to only when they have a handful of items to check out. Although through offering no options to shoppers in some stores in Europe, self-checkout is growing, it has stalled or reversed in the US.

The Apple Self-Checkout Experience

In November 2011 Apple introduced EasyPay 2.0 and the ability to perform a self-checkout using an iPhone. The iPhone camera would allow for UPC barcode scanning and the completion of a transaction, including payment without the need to interact with anyone in the store. By all degrees of evaluation EasyPay 2 and the later incarnations have been used by a very, very small number of customers. Apple has acknowledged that EasyPay 2 self-checkout has not reached the level of use they had hoped.

The Amazon Go Store Model

I spoke to the way the Amazon Go store works in detail late last year. Amazon Go is the hybrid of many technologies and ideas that started with the very first website Amazon created. When Jeff Bezos invented and patented the 1-click shopping experience, that Apple licensed later, few could imagine it could come to retail stores. It is the paramount amalgamation of:

- 1-click-like web shopping in retail
- Powerful App using location based services
- QR Code IDs
- Integrated Payment
- Image Recognition
- Multiple Sensor Technology
- Artificial Intelligence
- Machine Learning

It's called "just walk out" technology and when you walk out, your purchase is complete with a receipt in your app, charged to your Amazon account. This is achieved by an entryway that is similar to the subway turnstiles that you see in major cities. Yes this sounds like magic, retail magic.

A smartphone with the app installed is required to enter the store via presenting a barcode to a sensor. This barcode scan (along with other sensor technology e.g.: GPS, etc.) tracks that you have entered the store, identifies you're moving through the store and then identifies the product you pick up. To complete your shopping experience just walk out the door. Yes, that's it. The image recognition combined with a sensor fusion of technologies has already confirmed your order and totaled it up. All billed to your future Amazon Bank Card, but currently to the payment card you have on file with them, the nearing 1 billion payment cards they have on file.

New Retail Paradigms

I started out with quick food and beverage examples to illustrate a point where many consumers have been pleasantly surprised by the experience. The Automat concept gave way to some vending machine ideas and are still in use today. Clearly consumers do not feel the same about the self-checkout concepts even with improvements as exemplified in the Apple Store. I believe the demarcation point is the cognitive and mechanical loads placed on the customer to use these systems that ultimately become their downfall and rejection.

The fundamental aspect of the Amazon Go store is the "just walk out" premise. It presents a very clear process that after the first visit, can be very well understood. The same can be said of Cafe X. These new retail concepts also have integrated payments very much like the experience at Uber.

The systems that form Amazon Go store and Cafe X can be adapted to many businesses. The ideal would be to replicate the entire process and perhaps improve upon it. The pressure to build this at more retailers and food establishments will come from many angles, from containing costs to a streamlined, barrier free experience will drive this process.

In my view Amazon will likely license many aspects of the Amazon Go store technology, just like they license AWS (Amazon Web Services). Perhaps this is the fundamental reason they are building the stores as a demonstration platform. I spoke to how many elements would change in retail process including a slight net loss in employees. There would be in some cases a gain in production staff to aid in the increase of customer throughput and ultimately sales.

A Retail and Food Revolution

This is part of a natural evolution but also a revolution. Amazon jumped a few orders of magnitude ahead of the current arc of retail and technology. They bypassed the issues of self-checkout and bypassed the POS system and credit card system entirely. They also have bypassed the smartphone to a greater degree as most assume the smartphone would be the place where all innovation would be centered. Amazon has shifted the equation from the smartphone to the smart store. They have moved the retail shopping experience into a place never seen before. Over time, this will fundamentally change the very fabric of just about every retail shopping experience.

The new Amazon Go experience may have such a great effect, that the very thing Amazon took away so many years ago: retail shopping, they will give back by reinventing retail shopping all over again. What was old is new again and it will likely be at more and more retailers as time moves on. By 2025 it will become a common experience, for better or worse.

forbes.com

AT&T Teams Up With IBM, Nokia On IoT Security

February 9, 2017

“AT&T, IBM, and Nokia will be joined by Palo Alto Networks, Symantec, and Trustonic. Together the group will “research and raise awareness of ways to better secure the IoT ecosystem.”

U.S. wireless operator AT&T said it is teaming up with IBM, Nokia, and a handful of other companies to form an Internet of Things (IoT) Cybersecurity Alliance that will tackle the top IoT security challenges that exist today.

According to a Wednesday press release, AT&T, IBM, and Nokia will be joined by Palo Alto Networks, Symantec, and Trustonic. Together the group will “research and raise awareness of ways to better secure the IoT ecosystem.”

AT&T reported the move was prompted by its observation of a massive 3,198 percent increase in attackers scanning for vulnerabilities in IoT devices and a survey it ran that found 58 percent of companies were not confident in the security of their IoT devices.

“Be it a connected car, pacemaker, or coffee maker, every connected device is a potential new entry point for cyberattacks,” AT&T Chief Security Officer Bill O’Hern said. “Yet, each device requires very different security considerations. It’s become essential for industry leaders and innovators like those in the founding members of this Alliance, to work together to help the industry find more holistic security approaches for IoT.”

The carrier said alliance members believe the key to IoT security lies in protecting all devices at the endpoint, network, cloud and application layer, and using overarching threat analytics to study the overall ecosystem and designing products with a built-in, always-on security approach.

The specific goals of the alliance will include collaboration on and research around IoT security challenges across verticals like the connected car, industrial, smart cities, and healthcare; the dissection and solving of these problems at every critical layer of security, from the endpoint, connectivity, and cloud to data and application layers; and ensuring easy access to IoT security solutions across the ecosystem. The group will also seek to influence security standards and policies, AT&T said.

The announcement comes as part of a growing flurry of activity around IoT security.

Back in November, the U.S. Department of Homeland Security issued a report urging developers, manufacturers, and service providers to boost security around the Internet of Things (IoT) to curtail growing cybersecurity risks around connected devices.

The following month, the Z-Wave Alliance announced it will now require implementation of the new Security 2 (S2) framework in all products seeking a Z-Wave certification as of April 2017.

And last month, the U.S. Federal Trade Commission said it was offering a \$25,000 bounty for solutions to IoT security challenges.

All this buzz comes for good reason.

According to a recent report from Juniper Research, the vast scale of IoT connectivity could open the door for more and more massive botnet attacks.

“Attacks such as those on Dyn last October can be viewed as proof of concepts,” Steffen Sorrell, the research’s author said. “In the medium-term, botnets will be used far more creatively – not only to disrupt services, but also to create a distraction enabling multi-pronged attacks aimed at data theft or physical asset disruption.”

More on that report can be found here at our sister publication, CED.

Among Tier-1 carriers, AT&T has perhaps the biggest stake in the IoT game. As of September, AT&T Mobility and Consumer Operations CEO Glenn Lurie told Wireless Week the carrier had around 29 million connected devices – including 9.4 million connected cars – on its network. By the end of the fourth quarter 2016, that figure had risen to 31.6 million.

wirelessweek.com

Products & Services

Apple's Next iPhone Might Cost More Than \$1000 Thanks To OLED Displays

February 9, 2017

"With 2.0, we really looked hard at what people are using their watches for," he said. "We saw that usage was really focused around watch faces, messaging and fitness. So we really optimized 2.0 for those things." But Google improved a lot of other aspects of Wear as well, including the user interface, navigation and notifications."

iPhone rumor season is upon us — as if it ever ends — and the latest claims that the next iPhone will cost upwards of \$1000 (at least, for the most expensive model).

To be clear, that isn't a huge deal considering that the top-of-the-line iPhone currently costs more than \$900. Still, Fast Company reports that Apple may be switching from LCD displays to an OLED display, which would cost the company more to make the phone. The report also cites sources as saying that the memory in the next iPhone will be upgraded, another contributing factor to the rising cost.

This forthcoming phone represents 10 years of the iPhone, leading many to believe that Apple may call it "iPhone X."

Rumors suggest that the next flagship iPhone will measure in at 5.8-inches, which is a bit bigger than the iPhone 7 Plus.

Diverging a bit from the current strategy, the next iPhone is said to be released alongside two models that are the same size as the iPhone 7 (4.7-inch) and iPhone 7 Plus (5.5-inch), which will likely be called the iPhone 7S and iPhone 7S Plus respectively.

Trusted KGI Securities analyst Ming-Chi Qu wrote late last year that only the iPhone 8 (or iPhone X) will come with the new OLED display.

Along with the new display and the bigger size, rumors suggest that the back of the phone will be made of glass, and that the sides of the phone will be made of stainless steel instead of aluminum.

But perhaps more exciting is that Apple may be ditching the Home button, placing it under the display for a fully touch interface. In fact, sources are claiming that the next iPhone may not have any physical buttons, instead using touch-sensitive portions of metal for the volume/lock buttons.

Of course, Apple isn't expected to announce the next phone until Fall 2017, so nothing is set in stone. But if the OLED rumors in particular hold true, you might want to start prepping your bank account for a slightly more expensive purchase come September.

techcrunch.com

Android Wear 2.0 Was Worth The Long Wait

February 8, 2017

When Google introduced Android Wear back in 2014, the smartwatch industry was young. The only players worth noting were Pebble, Samsung (with its Tizen-based offerings) and a few other niche options (like Sony's proprietary SmartWatch OS). Google, however, aimed to kick the door wide open with the same approach it had taken with phones: Instead of making both the watch and the software, it would court different hardware manufacturers, cultivating a diverse set of designs along with a robust third-party app ecosystem.

Three years later, the bet seems to have paid off. Although it's had to fight off tough competition from the Apple Watch, Android Wear has survived and, according to Google, thrived. "If you compare the holiday season of 2016 with the holiday season the year before, we saw more than 70 percent growth," says Android Wear VP David Singleton (not that that's necessarily saying much). And so with all that success comes time for the second iteration of Google's wearable OS, Android Wear 2.0. It'll be available first on the newly announced LG Watch Style and Watch Sport on Feb. 10th and will roll out to compatible existing hardware in the coming weeks.

This update, according to Singleton, is the platform's biggest one since the birth of Android Wear, three years ago. "With 2.0, we really looked hard at what people are using their watches for," he said. "We saw that usage was really focused around watch faces, messaging and fitness. So we really optimized 2.0 for those things." But Google improved a lot of other aspects of Wear as well, including the user interface, navigation and notifications.

First, let's talk about watch faces. As with the previous iteration of Android Wear, you can swap in whatever face you like, either by selecting it on the companion Android Wear phone app or by adding it directly on the watch. But with Wear 1.0, there was often a trade-off: You could either choose the stylish but barren design or the complex but informative one.

With Wear 2.0, however, you can have the best of both worlds. That's because any watch face, as long as it supports complications, can now be customized with data from any app. Swapping out a complication is as easy as long-pressing it and then picking its replacement, which can be anything from calories burned to an app shortcut.

As with Wear 1.0, tapping on each complication brings up the related information card. So for example, tapping the calendar launches the agenda for the day, while the step counter shows how much progress you've made toward your 10,000-step goal.

And say you want different complications for different times of day -- you want the Nest function when you're at home, but not in the office, for example. You can customize different watch faces for different use cases. Switching watch faces is as easy as swiping left or right on the active watch screen, so you can simply change from one to another depending on where you are.

Indeed, the Android Wear team took care to make navigation a priority with the 2.0 update. "We really condensed and simplified things," said Jeff Chang, an Android Wear product manager. "We measured the number of taps and swipes between things, to get that down to as few as possible." So for example, oft-accessed settings are now combined into one display. Swipe down from the active screen and you'll see toggles for airplane mode, Do Not Disturb and as a settings shortcut.

One press of the side button launches the app menu, and navigating through the list can be done either via a rotating crown (if your watch has one) or the touchscreen. If you'd rather not scroll through your lengthy list of apps, you can also long-press a favorite to pin it to the top. The menu will list recently accessed apps first, followed by favorites and then the rest by alphabetical order.

Notifications have changed drastically as well. Instead of glaring white cards that take up the bottom half of the screen, there are now subtler notification icons. Also, the notifications themselves are now color-coded and contextual. So Gmail notifications have a red background, for example, while Hangouts are green. They only appear when you bring the watch up to your eyeline; a few seconds later, the watch face resurfaces again. If you like, you can access all of your recent notifications by swiping up on the main screen. The watch's overall UI is also much darker. "It's not only easier on the eyes, and it's a lot easier on battery life as well," Singleton says.

As for those incoming message notifications, replying is as easy as tapping; do it once and you'll immediately be brought to the reply menu. (Though bear in mind this is the experience on Android; the feature is extremely limited on the iPhone.) In addition to using your voice or drawing an emoji, Wear 2.0 introduces a full-on touch keyboard as well. At first this sounds pretty ridiculous on such a small screen, but it's surprisingly intuitive. You can either swipe through words like you can on Swype or SwiftKey, or you can use handwriting recognition. Either way, I found the word detection to be surprisingly accurate, with only a few errors.

Another way to reply to messages is through Smart Reply, which is powered by Google's machine learning. You'll see a list of what it thinks your reply will be depending on the context of the message. Much like the feature of the same name in Inbox, Smart Reply should be able to offer smarter and better responses over time as it learns more about you.

Speaking of machine learning, Android Wear 2.0 also finally brings Google's Assistant to the watch. Say "OK Google" or long-press the power button and you can ask all sorts of queries, like "How did the Warriors do against the Cavaliers?" or "How many tablespoons are there in a cup?" or "Is it going to rain today?" It can also be easily integrated with third-party connected devices like the Nest thermostat and Philips Hue lights or services like Uber and OpenTable.

Now onto fitness. Android Wear 2.0 has Google's preinstalled Fit app just as before, but the experience is much improved. You can see your calories, pace and distance as you sweat it out, and if your watch has a heart rate sensor, you'll see your beats per minute too. It also keeps track of how much you've been walking and cycling throughout the week and offers gentle reminders to get going toward your goal if you haven't met your mark. Plus, it will congratulate you when you succeed.

The new Google Fit is also a lot better suited to indoor workouts as well. Simply say you're on a treadmill or a stationary bike and it'll track your workout accordingly. Another great feature for strength training fans is that it can also now count reps when you're weight lifting and coach you through push-ups and sit-ups. "The watch actually recognizes that you're doing it," Singleton says. "So there's no cheating."

There's also a special treat if your Android watch has LTE. With Wear 2.0, you'll finally be able to stream music to the watch without having to download the songs first. The default option would be with Google Play Music, but Spotify should be compatible soon as well. You'll probably want to use Bluetooth headphones to listen to your tunes, unless you want to blast your playlist to the world around you as you're running.

Oh, and say you'd like a refreshing drink after you're done with that run. Well, if you happen to be close to an establishment that accepts Android Pay, you're in luck. That's because Android Pay is finally coming to Wear 2.0. So if your watch happens to support NFC, you can just tap it to the reader to pay for that bottle of water.

Last but certainly not least, Wear 2.0 has a completely reimagined app store model. Before, the only way to load apps onto the watch was via a companion app. Not anymore. Now you can browse the Play Store right on the watch and even download certain apps directly, without the need for a corresponding phone app. This is especially useful if you have an iPhone: You'll finally be able to download and use third-party apps regardless of what phone you have. Of course, not all apps can be

operated as standalone -- some will still require an Android phone for full functionality. But if you are an iPhone user, you won't see them in the Play Store anyway; only compatible apps will show up on the watch.

On the whole, Android Wear 2.0 is a welcome improvement. It not only looks better but also is much easier to use than before. What used to take several taps and swipes now takes one or two. The new messaging and fitness features are welcome as well. But it's the introduction of Google Assistant and the standalone app store that takes Wear 2.0 from good to great. It makes Android Wear not only much less dependent on the phone but also much more compatible with iOS -- making it the toughest contender against the Apple Watch yet.

engadget.com

Emerging Technology

Scientists Make Battery That Runs On Air And Carbon Dioxide

February 10, 2017

Researchers at Penn State University have potentially come up with yet another way we could create energy from all that nasty carbon dioxide we pump into the atmosphere. They've developed an inexpensive flow cell battery that uses mostly water solutions containing either dissolved CO₂ or dissolved normal air -- the technical name for the dissolving process is called sparging, just FYI. Because the liquids contain different concentrations of CO₂, they have different pH levels, and it's this imbalance that generates electricity.

In a flow cell battery, two liquids are separated by a membrane that doesn't allow them to mix, but does permit the flow of ions. As ions are exchanged between the denser CO₂ solution and normal air solution, the voltage changes at the manganese oxide electrodes in either tank. This stimulates the flow of electrons between the two connected electrodes and voilà: electricity. When the ion concentrations have normalized, you can effectively recharge the battery by refilling each tank with the opposite solution, reversing the flow of electrons. The Penn State scientists were able to do this over 50 times before seeing a drop in performance.

Using CO₂ in a flow cell battery isn't an entirely new idea, but this version has an average power density of 0.82 W/m² -- nearly 200 times higher than anything developed previously, according to the researchers. Other CO₂-based fuel cell systems are capable of much more, but they are also much more complicated, using other energy dense fuels and requiring high temperatures to operate.

Penn State's battery, on the other hand, works at room temperature and uses inexpensive materials and processes. Even so, the team admit it may not be economically viable to make use of their research on a large scale just yet. The dream, though, would be to integrate these batteries into fossil fuel power stations, repurposing their CO₂ emissions to make even more energy. While more work needs to be done to improve performance and viability, anything that can make light of a bad (and worsening) situation can only be a good thing.

engadget.com

Chrome Now Supports VR On Daydream-Ready Phones

February 9, 2017

“This type of VR experience will work now on Google’s Daydream View headset when used with the Pixel phones. But you’ll also be able to explore VR sites even without this sort of equipment.”

Google today is announcing that people can now view virtual reality (VR) content in the Chrome app on Daydream-ready Android devices such as the Google Pixel and Pixel XL. This is the first time such capability is becoming a part of a stable build of Chrome.

This type of VR experience will work now on Google’s Daydream View headset when used with the Pixel phones. But you’ll also be able to explore VR sites even without this sort of equipment.

“If you don’t have a headset you can view VR content on any phone or desktop computer and interact using your finger or mouse,” Google product manager Megan Lindsay wrote in a blog post.

In the next few months, Lindsay wrote, Google will make it possible to view VR pages inside the Google Cardboard VR headset. This whole time the Cardboard experience, and the Google Daydream View experience, has been constrained to apps, but now it’s coming to the web — specifically through the Chrome browser, which has more than 1 billion active users on Android and iOS.

Google has been taking steps to prepare for this moment. More than a year ago now, Google chose Clay Bavor to head up its VR division. It introduced the Pixels as the first Daydream-ready phones in October. In December it introduced an origin trial for developers to try the WebVR application programming interface (API) in the beta release of Chrome 56 for Android. And in May Google hired Josh Carpenter, the head of Mozilla’s MozVR initiative. He’s been working on WebVR as a user interface designer for immersive computing at Google.

The WebVR API is also available in the Firefox Nightly browser, in preview in Microsoft’s Edge browser (with build 15002 for Insiders), and in Samsung’s internet browser for its Gear VR headset.

Google is in the process of bringing WebVR to Chrome for desktop operating systems, a Google spokesperson told VentureBeat in an email. As of now, developers still need to enroll in the origin trial to get a token for the WebVR API, the spokesperson wrote.

venturebeat.com

Mergers and Acquisitions

Nokia To Acquire Comptel, Boost Software Capabilities

February 9, 2017

If anyone were wondering how Nokia is prepared for an increasingly software-driven telco world, the company’s intention to buy Comptel should answer that, at least in part. Espoo, Finland-based Nokia is buying fellow Finnish company Comptel for \$370 million, in part to beef up its software offerings, namely SDN and NFV.

The planned acquisition is part of Nokia’s strategy to build a standalone software business at scale by expanding and strengthening its software portfolio and go-to-market capabilities with additional sales capacity and a strategic partner network. In a statement, Nokia said Comptel would bolster Nokia’s software portfolio by adding critical solutions for catalog-driven service orchestration and fulfillment, intelligent data processing, customer engagement and agile service monetization.

“The combination of Nokia’s Service Assurance portfolio and Comptel’s Service Orchestration portfolio would enable a dynamic closed loop between service assurance and fulfillment that simplifies management of complex heterogeneous networks,” Nokia said in a press release. “When

combined with Nokia's Cloudband and Nuage portfolios, Nokia would be able to provide customers with complete, end-to-end orchestration of complex Network Function Virtualization (NFV) and Software Defined Networking (SDN) deployments."

Nokia's offer for the company represents a premium of 28.8% versus the Feb. 8 closing price of the shares on Nasdaq Helsinki and the deal has yet to close, so someone else could sweep in and try to better the deal, but Nokia noted that several major shareholders have already agreed to sell their shares.

"Nokia is committed to building its software business and is backing its commitment with strategic investments," said Bhaskar Gorti, president of Nokia's Applications & Analytics business group, in the release. "The timing of the Comptel purchase is important as our customers are changing the way they build and operate their networks. They are turning to software to provide more intelligence, automate more of their operations, and realize the efficiency gains that virtualization promises. We want to help them by offering one of the industry's broadest and most advanced portfolios. Comptel helps us do that."

Comptel, a longtime partner with Nokia, was founded in 1986 and employs more than 800 people in 32 countries. It processes 20% of the world's mobile usage data every day and orchestrates communications and digital services for more than 2 billion end users daily. The company's major sites are in Finland, Bulgaria, Malaysia, India, the United Kingdom and Norway.

Comptel CEO and President Juhani Hintikka said combining with Nokia means they will create "an agile and innovative player which can challenge current market leaders head-to-head," noting that for the past five years Comptel has been working hard to sharpen its thought leadership and competitiveness by rebuilding the brand, product portfolio and culture.

Major operators around the world are moving to a SDN/NFV framework, with AT&T aggressively leading the pack in the U.S. IHS Markit estimates the global NFV market, which includes NFV hardware, software and services, will be worth \$15.5 billion by 2020.

Nokia has been moving to expand its offerings as the market for wireless network gear wreaked havoc on traditional vendors like itself and rival Ericsson. Last week, Nokia CEO Rajeev Suri said the company started 2016 primarily focused on mobile networks but ended the year with a complete portfolio spanning mobile, fixed, routing, optical, standalone software and more.

fiercewireless.com

Priceline Pays \$550 Million To Acquire European Travel Search Firm Momondo

February 8, 2017

The Priceline Group is acquiring U.K.-based travel search company the Momondo Group in an all-cash transaction worth \$550 million.

The Momondo Group operates a number of prominent travel brands, including global flight comparison sight Cheapflights and Momondo, a European search engine for hotels, flights, and cars. As a result of this deal, Momondo's properties will operate under Priceline's Kayak arm — a company it snapped up for a whopping \$1.8 billion back in 2012.

"Momondo and Cheapflights have built great products serving loyal users across Europe," said Kayak CEO Steve Hafner. "We're looking forward to learning from them and sharing best practices as our brands expand globally."

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"The Momondo Group operates a number of prominent travel brands, including global flight comparison sight Cheapflights and Momondo, a European search engine for hotels, flights, and cars. As a result of this deal, Momondo's properties will operate under Priceline's Kayak arm"

Today's news comes less than three months after fellow U.K.-based search giant Skyscanner was acquired by China's Ctrip for \$1.74 billion. Skyscanner CEO Gareth Williams said at the time that he decided to sell because of the "operational independence" afforded by Ctrip.

Priceline has dipped its toes into the U.K. before in search of acquisitions — back in 2004 it bought out hotel reservation service Active Hotels in a \$161 million deal, and it also took on U.K. car hire firm TravelJigsaw six years later. In 2014, Priceline made its biggest acquisition to date when it procured U.S.-based restaurant booking service OpenTable for a hefty \$2.6 billion.

Priceline went public back in 1999, with a successful IPO, but the company's shares hit rock bottom following the dotcom crash in 2000. After nine years of fairly poor performance on the market, however, the company has been in steady ascension, climbing from around \$72 a share in February 2009 to a staggering \$1,600 today. Put simply, Momondo is joining a company that's flying.

"The Priceline Group has a proven track record of operating successful, customer-centric travel brands all over the world," said Momondo Group CEO Hugo Burge. "We couldn't be more excited to join such an esteemed group of loved brands and join forces with Kayak to bring the best in meta search to our growing customer bases worldwide."

venturebeat.com

The New York Times Bundles Spotify To Entice Subscribers

February 8, 2017

After building up plenty of new subscriber momentum during the election, the New York Times is making a surprising move to encourage people to pay up: Bundling Spotify's music streaming service with unlimited access to its news offerings. The NYT will offer the new joint subscription for \$5 a week -- 20 percent less than the current NYT unlimited pricing, which comes in at \$6.25 a week -- and will include unlimited access to Spotify's premium offerings (which typically costs \$10 a month).

It might seem like a strange fit, but the partnership could help both services attract some new users, as Bloomberg notes. The New York Times currently has around 3 million digital subscribers, but it's aiming for a cool 10 million. Spotify, meanwhile, currently has more than 40 million subscribers. Perhaps more than the subscription discount, deeper integration between the NYT and Spotify could convince people to actually pay for their services. And don't forget, the NYT isn't a stranger to new tech, especially with the increasing amount of 360-degree VR videos it's producing.

engadget.com

Industry Reports

Sprint's Turnaround Boosts Softbank To 71% Jump In Profit

February 8, 2017

SoftBank's profit rocketed 71% in the latest quarter thanks largely to Sprint's progress in regaining its financial footing.

The Japanese telecom posted a \$2.63 billion profit during the quarter, up from \$1.54 billion during the same period a year ago and ahead of analysts' estimates. Sprint's turnaround contributed to half of SoftBank's growth last quarter, The Wall Street Journal reported.

The quarterly earnings highlight how effectively Sprint has slashed costs over the last two years. Sprint weighed down shares of its parent company in the first half of 2016 as it struggled to shore up

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its bottom line. It reported a net loss of \$554 million during the first quarter of 2016, more than doubling the \$224 million loss it recorded during the same period in 2015.

Sprint's net operating revenues came in at \$8.5 billion during the final quarter of 2016, demonstrating more than 5% year-over-year growth, and its net loss of \$479 million was a marked improvement over the \$836 million net loss it recorded a year ago. The postpaid phone net additions were Sprint's highest in four years, marking the ninth consecutive quarter of year-over-year growth, but its 405,000 overall postpaid adds was shy of analysts' estimates by 2.4% and was down more than 19% year-over-year, MoffettNathanson analysts noted.

Some industry insiders are still uncertain about Sprint's fate, however. Donald Trump's Election Day win has stoked speculation the carrier could merge with T-Mobile in a move that would significantly consolidate the U.S. market.

SoftBank CEO gave little indication what his plans are for Sprint, saying "we may buy ... we may sell," according to Jennifer Fritzsche of Wells Fargo Securities. But the Japanese firm is unlikely to cede control of its U.S. carrier given its recent traction, Fritzsche said.

"We don't know the answer but it is hard for us to see SoftBank taking a minority position in a combined entity given the momentum in Sprint is only just being seen, in our view (even in a period of limited capital spending)," Fritzsche wrote in a note to investors. "Additionally, we continue to believe in any negotiations, Sprint would be in a position of strength given the significant spectrum asset value to any potential combination."

Sprint shares were up 3.6% by mid-day Wednesday.

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