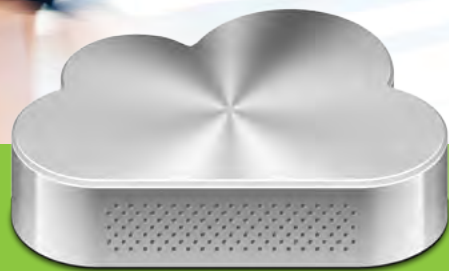




CenturyLink®



Right This **Millisecond:**

How Hyperscale Computing Is Transforming
Retail Strategy—and Profitability

Executive Summary

Go faster. It's the clarion call of retailers. From constant big data experiments to lightning-fast processing power, innovative retailers are moving into real-time when it comes to driving change.

In this eBook, we look at how big data analytics, sophisticated computing models, and hyperscale computing can help retailers compete successfully with eCommerce giants. No longer cowed by showrooming, retailers are using their physical locations in creative, engaging ways, while committing to minute-by-minute marketing and pricing combat with their pure-play peers.

Hyperscale computing is a weapon of competitive advantage. Retailers are using hyperscale computing to build 360-degree views of their customers, harness the power of predictive analytics, develop personalized offers and pricing at the point-of-sale, and redesign physical stores to strengthen their value and connection with shoppers.

Hyperscale computing can help retailers perform bone-crunching analytics, drive rapidly to insight in key functions across the enterprise, and scale automatically to meet business needs. This is no longer a platform for bleeding-edge innovators: It's a must-have for every retailer that wants to move beyond survival of the fittest to leader of the pack.

Read on to learn why it's time to go hyperscale—today.

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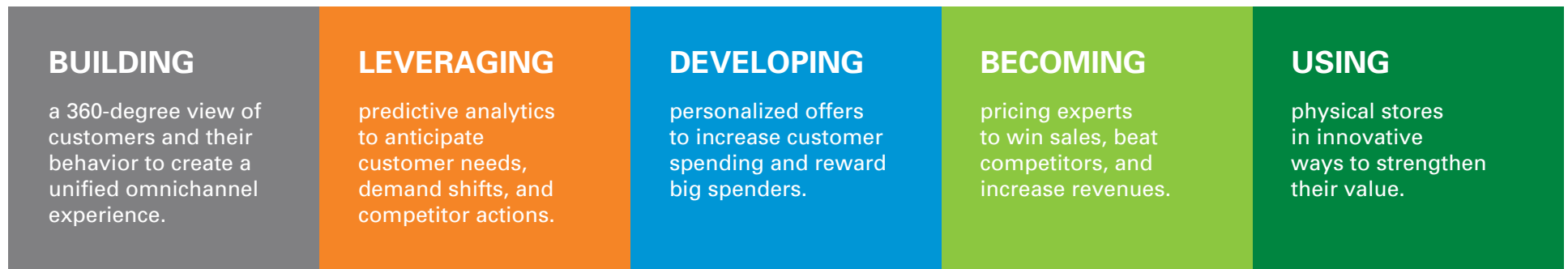
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It's an Omnichannel World

Fierce, click-to-click eCommerce combat is breaking out among brick-and-mortar retailers, pure-play brands, and online marketplaces as they grapple for growth. They're also rethinking their store strategies, striving for a seamless shopping experience that delights customers. **Successful market leaders need to become big data impresarios, able to drive to insight—and action—in milliseconds.**

Massive data stores, powerful algorithms, open-source platforms, and hyperscale computing enable the industry to forecast the future, measure the past and present, and maximize their opportunities.

Retailers are:




In this new model, hyperscale computing emerges as a major game-changing advantage.



By **2016**, the online channel will influence more than half of all retail transactions, representing **\$2 trillion** in potential sales.¹

ARE YOU READY TO GET STARTED?



I See You: Creating a 360-Degree View of the Customer

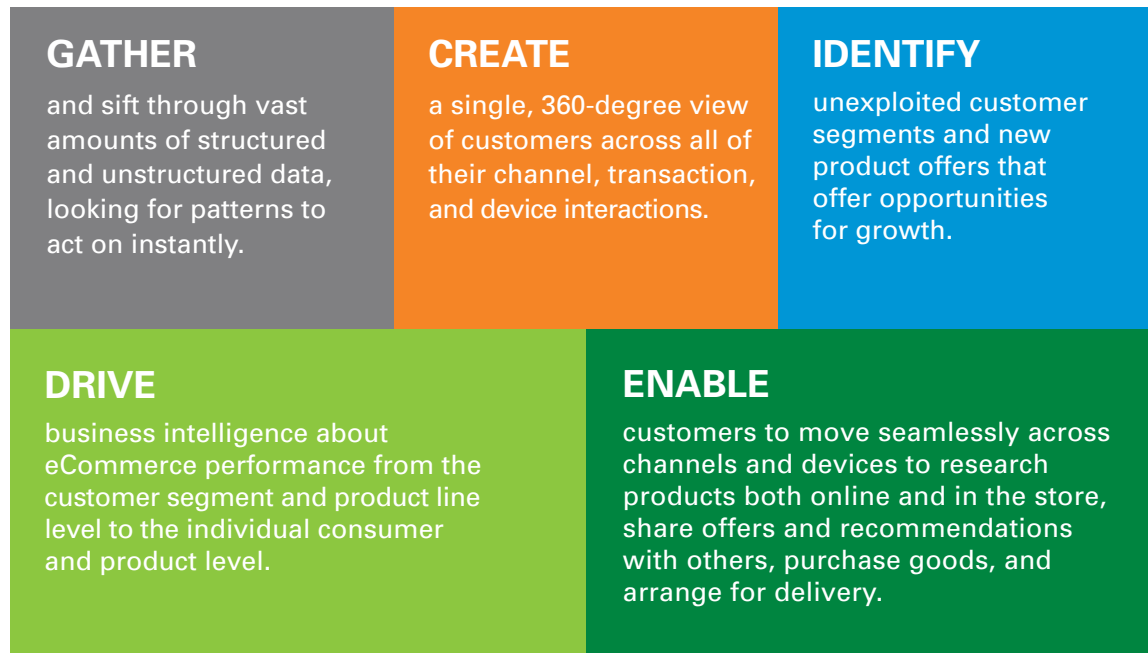
If behavior speaks louder than words, retail customers are trumpeting their needs and desires in a deafening roar. Buyer behavior, from online web searches, to social media sharing, purchase histories, loyalty program participation, call center requests, and more, provides retailers and eCommerce providers with a wealth of data.

And that data is exploding. By way of example: Wal-Mart generates a million rows of transaction records every single hour.² It's time to put all of the pieces of the puzzle together and turn information into insights.



Retailers will move customer data from stovepiped systems to hybrid ecosystems made of mix-and-match cloud services and dedicated infrastructures that can be deployed rapidly and cost-efficiently. These dynamic hyperplatforms **will allow retailers to easily access, manipulate, and use large quantities of both structured and unstructured data and distribute workloads globally.**

These companies will use a myriad of technologies, analytics, and hyperscale computing to:



Fewer than 5% of eCommerce companies use big data or predictive analytics software. Among them are Amazon, Alibaba, and Rakuten.³

Alibaba, China's eCommerce giant, processes 200 million transactions every week.⁴

"Networks aren't fast enough to process big data, and there isn't enough memory."⁵

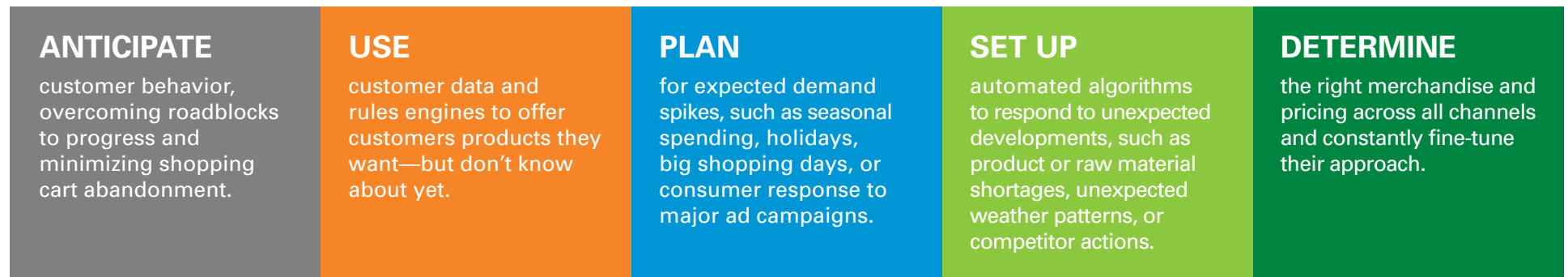
Mark Beyer,
Research Vice President,
Gartner

The Forecast Calls for Predictive Analytics

If companies possess a treasure trove of data—and customers are adding to it all the time—why aren't more retailers masters at the art of predictive analytics? Obviously, moving to a predictive modeling approach takes significant investments, in-house skill, and time to build test-and-learn experiments into enterprise capabilities.

But the clock is ticking, as eCommerce providers constantly refine their approaches, running marketing campaigns for micro-segments as small as one. Companies can use predictive modeling tools and hyperscale computing to sieve through vast mountains of data looking for critical patterns.

They can:



Companies that leverage advanced analytics for eCommerce operations have achieved significantly higher click-through rates and conversions—three to 10 times the average.⁶

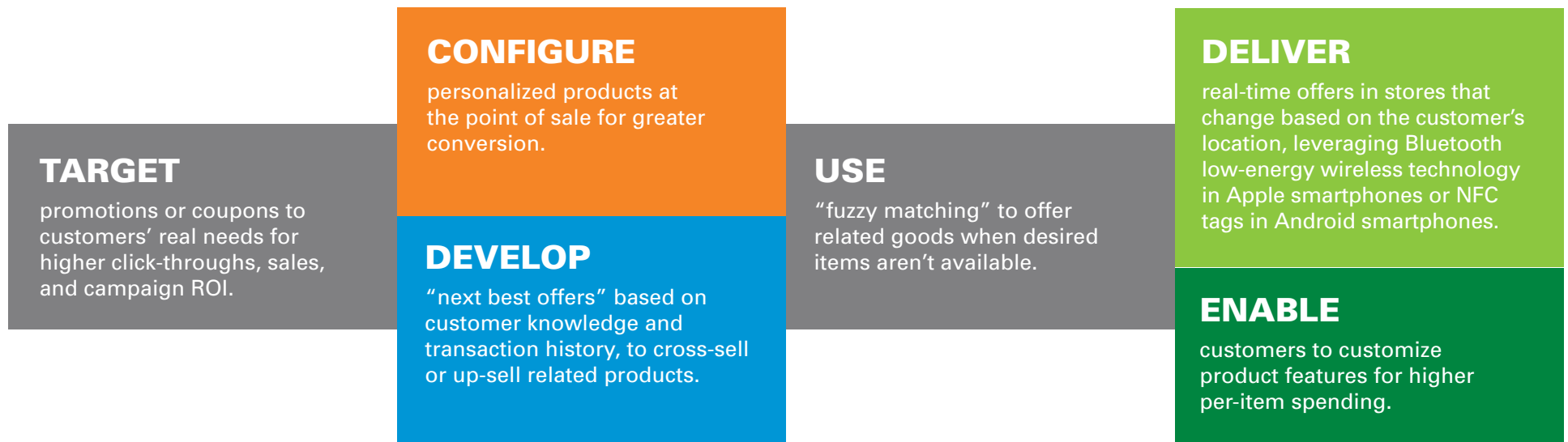
Within three years, ★ **macys** moved from analyzing customer data on Excel spreadsheets to using big data and analytics programs. As a consequence, it has increased in-store sales by **10%**.⁷

Knowing Me, Knowing You: The Power of Personalization

Not every customer is equal. High-value customers, who often belong to loyalty programs, are the kings and queens of retail. **Big data experts are carefully wooing—and keeping—these real spenders with perks that are carefully customized to their desires.**

However, even “average” or price-sensitive consumers offer opportunities for higher ROI, with the right cross-selling and up-selling opportunities.

Retailers are using the raw power of hyperscale computing and analytics to:



Personalization can deliver five to eight times the ROI on marketing investment and boost sales by 10%.⁸



This Offer Won't Last: Successful Promotions and Pricing

Consumers won't give up their discounts and promotions. The implosion of erstwhile CEO Ron Johnson's turn-around strategy for J.C. Penney is a contemporary case in point. Transparent pricing—and downward pressure on margins—is here to stay. Retailers have a choice: They can either go up-market by creating a unique experience, become rapid-fire pricing and promotion experts, or bundle products for higher sales and margins.

They also can outfox the competition, by using big data to gain intelligence into their industry processes and pricing, and use this information against them.

Whatever their approach, they need to speed up. A recent IDC report compared eCommerce pricing to a never-ending game of “breakneck channel chess.”⁹

Companies are using big data, analytics, and hyperscale computing to:



Developing big data promotional expertise can help retailers increase profit margins by 1% for sales.¹⁴



Location Still Matters: Rethinking Store Networks

For the past few years, the conventional wisdom was that it was game over for brick-and-mortar retailers, who were hobbled by expansive, expensive geographic footprints, legacy technology systems, and the need to hold aging inventory. In this way of thinking, big box retailers and other merchants were nothing but expensive showrooms, losing sales to aggressive online discounters. Amazon, eBay, and others would rule the world.

Not so fast.

Showrooming is now giving way to webrooming, where customers research items online but complete purchases in person. In addition, stores can serve as living labs for observing customers' offline behavior. But stores need to change.



Retail planners should think Apple, not Circuit City (RIP). In a McKinsey interview, Devin Wenig, president of eBay Marketplaces, says chains will be creating smaller-scale storefronts that are “shoppable windows” and are colocated with inventory and distribution centers.¹⁵

Companies can use big data and hyperscale computing to:

RATIONALIZE

their geographic footprint, opening new locations in underserved areas and closing stores that don’t have a viable long-term life cycle.

IDENTIFY

opportunities for tie-ups, where a retailer’s network and customer segments offer competitive advantage to potential partners.¹⁶

DEVELOP

targeted coupons and offers to drive customers to stores.

SIFT

service analytics across myriad locations, zeroing in on—and standardizing—the targeted associate behaviors that cause shoppers to spend up to 50% more per visit.¹⁷

REDESIGN

store layouts based on how customers behave in stores and which product combinations they purchase together.

OFFER

innovative in-store services, such as Klarna’s pay-later services, which use a 200-variable algorithm to determine customer risk across 200,000 daily transactions¹⁸ and motivate impulse purchases.

“49% of shoppers during the **2012 holiday season** preferred to research online and then buy in stores, instead of conducting all of their purchases online.”¹⁹

—ForSee

It's Go Time

Your business is moving fast. Make sure other retailers aren't moving faster. To increase their competitive edge, retailers and eCommerce providers must leverage the power of analytical tools and managed cloud services.

Hyperscale computing offers instant access to incredible raw computing power provided by tens of thousands of servers offering myriad petabytes of storage.



While Google and Facebook build and operate their own data centers, you can now get access to that same computing power from CenturyLink and Microsoft.



Think Big with CenturyLink Cloud

Hyperscale computing providers can provide you with the exceptional power, instant availability, and reliability you need to achieve breakthrough advantages with big data.

But it's important to choose the right partner. Here's why CenturyLink and Microsoft offer you the best solution and capabilities in the market.

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The leading hyperscale solution = **MANAGED**



CenturyLink®

high-performance
compute power



100%

flash storage



Microsoft
SQL Server

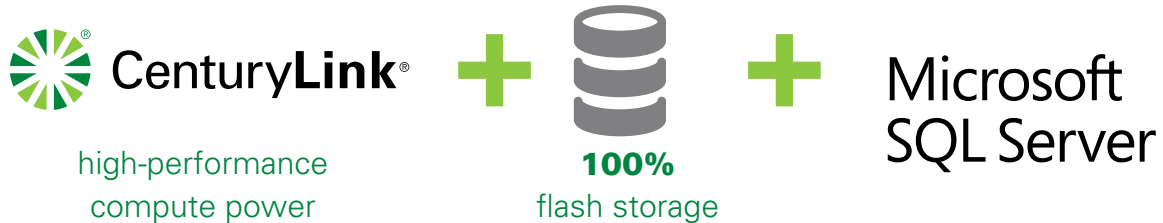
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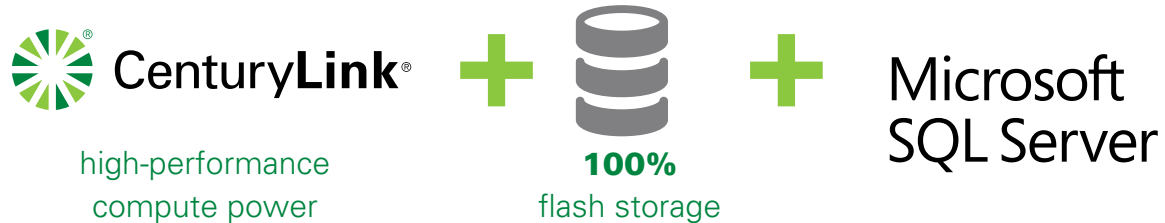
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Delivered from 13 global data center locations worldwide.

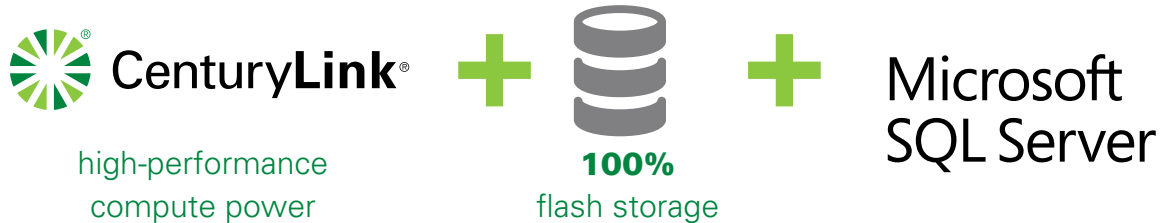
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RETAILERS GAIN:

- ▶ **Speed**-to-market
- ▶ **Instant** availability
- ▶ **Business** flexibility
- ▶ **Security** and regulatory compliance
- ▶ **Cost-effective** solution

PERFECT FOR:

- ▶ **Web-scale** workloads
- ▶ **Big data** analytics
- ▶ **Next-generation** applications

11 Benefits for Your Business

1 Scale automatically to meet business demands without having to overprovision CenturyLink Managed Microsoft SQL Servers resources upfront or guess what resources you will need.

2 Go hyperscale by leveraging CenturyLink Cloud's high-performance compute with 100% flash storage to turbo-charge performance to at least 15,000 input-output operations per seconds (IOPS) over 10Gbps networks.

3 Change the game with in-memory to increase the speed of new and existing SQL Server apps, accelerate time to insights, and run important workloads faster than ever.

4 Maintain control using blueprints to model complex server environments and reuse them easily. Configure autoscale policies for CPUs "vertically" on a per-server basis, setting acceptable ranges and thresholds.

5 Quickly provision Microsoft SQL Servers into the CenturyLink Cloud directly from the CenturyLink Cloud Control portal.

6 Ensure continuous availability with Microsoft SQL Server 2014 AlwaysOn's functionality. Geodiverse availability groups provide built-in redundancy of your critical data.

7 Perform data-intensive business analytics without causing any disruption to your operations or the customer experience.

8 Leverage availability groups to ensure business continuity, isolate key workloads, and offload data backups, analytics, and business intelligence.

9 Build compliant applications on our hybrid cloud solutions. We are compliant with SSAE 16, ISAE 3402, SAS70 and ITIL and possess deep FISMA, HIPPA, and PCI experience.

10 Access leading security including server updates, physical security, and customer-specific data security.

11 Leverage top-notch hardware. Each CenturyLink Cloud node offers 70% max allocation to accommodate spikes, 100% flash storage, 10Gb networking, and limitless customization and configuration of compute, memory, storage.



About CenturyLink

CenturyLink partners with Microsoft to provide exceptional managed cloud and dedicated server services with hyperscale and autoscale capabilities. We are pleased to offer the industry-leading Microsoft SQL Server 2014 platform to our global business customer base, providing customers with AlwaysOn reliability, business intelligence, self-service tools, and a full suite of managed services.

As the third largest network carrier in the United States, we offer multisite MPLS network capabilities, significant managed cloud experience, and deep network expertise. Our cloud services include “beyond hybrid” capabilities with standard integration between computing environments.

They include:

PUBLIC CLOUD

Create AlwaysOn availability groups within CenturyLink Cloud, mixing traditional and hyperscale virtual machines interchangeably.

HYBRID CLOUD

Mix private and public clouds to create a hybrid data solution. Use public clouds for burst capacity, such as seasonal or unforeseen events. Remove the need for capacity planning or performance concerns with hyperscale and autoscale functionality.

COLOCATION

CenturyLink is one of the world’s largest colocation providers. Use our services to integrate your colocation environment with our public and private clouds. This is an unprecedented capability that allows you to integrate into the cloud with existing investments, mainframes, and legacy systems.

MANAGED SERVICES

Use our services to maintain, manage, and monitor your cloud servers. Access our 24x7 expertise for a flat hourly rate, ensuring your platform is always up-to-date and high-functioning.

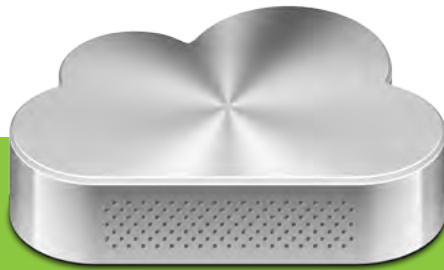


For more information, visit www.centurylink.com.



ENDNOTES

- ¹ Edwin van Bommel, David Edelman, and Kelly Ungerman, "Digitizing the Consumer Decision Journey," McKinsey & Company, June 2014, http://www.mckinsey.com/insights/marketing_sales/digitizing_the_consumer_decision_journey.
- ² Constance Gustke, "Retail Goes Shopping Through Big Data," CNBC, April 15, 2013, <http://www.cnbc.com/id/100638141>.
- ³ Mark Milian, "Retailers Use Big Data to Turn You Into a Big Spender," Bloomberg, June 3, 2014, <http://www.bloomberg.com/news/2014-06-03/retailers-use-big-data-to-turn-you-into-a-big-spender.html>.
- ⁴ James Manyika and Michael Chui, McKinsey & Company, "Digital Era Brings Hyperscale Challenges," Financial Times, August 13, 2014, <http://www.ft.com/intl/cms/s/0/f30051b2-1e36-11e4-bb68-00144feabdc0.html#axzz3DnJ0GYV>.
- ⁵ Retail Goes Shopping," *ibid.*
- ⁶ *Ibid.*
- ⁷ Kelly Kennedy, "Five Big Data Trends Revolutionizing Retail," ZDNet, August 16, 2013, <http://www.zdnet.com/five-big-data-trends-revolutionizing-retail-7000019510/>.
- ⁸ "Five Big Data Trends," *ibid.*
- ⁹ "IDC Retail Insights Presents Big Data and Analytics Foundation for Next Generation Revenue Management," Press Release, August 18, 2014, <http://www.businesswire.com/news/home/20140818005743/en/IDC-Retail-Insights-Presents-Big-Data-Analytics#.VByqRfldV8E>.
- ¹⁰ Walter Baker, Dieter Kiewell, and Georg Winkler, "Using Big Data to Make Better Pricing Decisions," McKinsey & Company, June 2014, http://www.mckinsey.com/insights/marketing_sales/using_big_data_to_make_better_pricing_decisions.
- ¹¹ Robert Souza, Thomas Jensen, Cornelius Kaestner, and David Potere "Making Big Data Work: Retailing," BCG Perspectives, June 24, 2014, https://www.bcgperspectives.com/content/articles/retail_pricing_making_big_data_work_retailing/.
- ¹² *Ibid.*
- ¹³ *Ibid.*
- ¹⁴ *Ibid.*
- ¹⁵ "How Digital Is Transforming Retail: The View from eBay," Devin Wenig Interview, McKinsey & Company, July 2014, http://www.mckinsey.com/insights/consumer_and_retail/how_digital_is_transforming_retail_the_view_from_ebay.
- ¹⁶ "Making Big Data Work, *ibid.*"
- ¹⁷ Barbara Thau, "Can Predictive Analytics Help Retailers Dodge a J.C. Penney-Style Debacle?" Forbes, April 22, 2013, <http://www.forbes.com/sites/barbarathau/2013/04/22/can-predictive-analytics-help-retailers-dodge-a-j-c-penney-style-debacle/>.
- ¹⁸ "Retailers Use Big Data," *ibid.*
- ¹⁹ Barbara Thau, "Five Things You (And Retailers) Might Not Know About This Black Friday Weekend," Forbes, November 26, 2013, <http://www.forbes.com/sites/barbarathau/2013/11/26/five-things-you-and-retailers-might-not-know-about-this-black-friday-weekend/>.



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today to get started with hyperscale computing!

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