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VOLUME 6, NUMBER 5



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How Technology Is Changing Your Business





Mobility and the ‘consumerization’ of IT will have a dramatic impact on your business in 2012 and beyond. *Are you ready?*

The consumerization of IT and growing demand for mobile devices is driving new innovations in mobile computing technology. IT research firm Yankee Group predicts that the growing deployment of wireless and wired connectivity globally is fueling a consumer revolution that will drive \$2 trillion in technology spending by 2014. Ubiquitous connectivity, truly mobile devices, content in the cloud and a plethora of apps are enabling consumers to live, work and play on the go.

In this new environment, consumers are the new power brokers: They decide which technologies and experiences succeed — and which ones don’t.

What does that mean to your business?

Gartner analysts say consumerization is now the primary driver of business mobility, and IT leaders must be ready to embrace a flexible mobile strategy. Employees are behaving more like consumers, demanding a wider choice of devices and exploiting consumer devices and applications from app stores. They are driving the “bring your own” (BYO) IT revolution, in which employees use personally owned tablets and smartphones for work. As a result, the distinctions between a person’s role as an employee and as a consumer are more blurred than ever.

“CIOs must be ready for BYO programs sooner than they realize,” said Nick Jones, vice president and distinguished analyst at Gartner. “BYO is a principle that most organizations will adopt and organizations must prepare for this change.”

End-user expectations continue to rise along with the growing consumerization of IT. Users want ultra-thin, instant-on laptops with long battery life. They also want the touchscreen features, ease of software delivery and “app store” convenience they enjoy with their smartphones. App stores and mobile ecosystems are causing a proliferation of new applications and services in the enterprise. Employees increasingly seek to take full advantage of better browsers and innovative applications from app stores.

“The landscape of devices and user needs is changing,” said Carolina Milanese, research vice president at Gartner. “CIOs are facing mass mobility, and it is expected to grow rapidly.”

Connectivity is essential, and access to the public Internet is only the tip of the iceberg. End-users want an always-connected solution that gives them the features and functionality they would have on a desktop — anywhere, anytime. Organizations must start now to provide the technologies employees demand and be ready to exploit those technologies for competitive advantage.

“Regardless of your current approach, the reality is that consumerization is here to stay and will have an enormous impact on the management of corporate mobility for many years to come,” said Milanese.



Smart Wi-Fi

Business, education and healthcare sectors all benefit from Ruckus Wireless' adaptive antenna technology.

While mobile devices such as smartphones and tablet PCs offer a variety of productivity-enhancing possibilities, they also present significant wireless connectivity challenges for companies, healthcare organizations, schools and more.

Unlike conventional workstations that tend to stay in a fixed position, iPads, iPhones and other new smart mobile devices are held by users who are continually altering the orientation of the device. The slightest change in antenna orientation of these devices causes dramatic swings in wireless performance as the integrity of the signal path constantly changes.

ZoneFlex Smart Wi-Fi technology from Ruckus Wireless not only meets today's demands for high-speed Internet access but also allows organizations to future-proof their properties with wireless networks that support new applications and devices for years to come. Patented adaptive antenna technology is the key to ZoneFlex.

Moving Targets

Unlike conventional Wi-Fi products, each ZoneFlex access point integrates a miniaturized adaptive antenna array that forms and directs Wi-Fi signals only where they are needed — constantly focusing and steering radio frequency energy over the fastest signal path. This ensures higher data rates at longer ranges without any manual tuning, while extending the range and reducing the number of access points (APs) needed to cover any given area.

Such innovation is typical at Ruckus. The company has been awarded 27 patents related to its Wi-Fi improvements and currently has more than 30 patents pending.

“The dynamics of the Wi-Fi market is changing at lightning speed due to more sophisticated applications, users and devices swarming wireless networks,” said Selina Lo, president and CEO of Ruckus Wireless. “The mobile Internet phenomenon is having a dramatic impact on both enterprise and carrier infrastructures; Wi-Fi must be more robust and reliable, hence our laser focus toward new 802.11n developments. Ruckus is the only pure-play wireless company that is taking Wi-Fi where it's never been before and to where it needs to go.”

Wi-Fi Dominates

The 802.11n standard, finalized in March 2009, has been a game-changer for wireless networking by delivering WLAN throughput of at least 100Mbps, five times better than what is possible with the older 802.11g technology. The heart of 802.11n is a technology called MIMO — short for multiple input, multiple output — that employs multiple antennas and radios to transmit and receive data. Although multiple paths typically degrade radio signals, MIMO uses a technique called spatial multiplexing for simultaneous transmission. This not only increases bandwidth but provides greater coverage, enabling very high-speed connections over distances of 150 feet or more.

This has helped push wireless networking into the mainstream. Accord-

ing to AdMob's Mobile Metrics report (May 2010), 60 percent of data traffic in the U.S. came from Wi-Fi capable devices with 58 percent of the world's iPad users located in the U.S.

Throughout the U.S. and abroad, K-12 schools and universities are utilizing iPads, iPhones, tablets and other handheld devices to enable mobility in the classroom and achieve higher standards of learning. Meanwhile hospitals and clinics rely on iPads and mobile devices to support electronic medical records (EMR) software and deliver better bedside patient care.

Head of the Class

Pitt County Schools in Greenville, N.C., turned to Ruckus after a 500 percent increase in the district's use of handheld devices requiring wireless access.

"Twelve months ago, almost all of the wireless devices were laptops," said Jeff Smith, director of technology for the 35-school district. "This year, we've added many iPads, iPod Touches and netbooks — most of which can only connect wirelessly — which has taken our Wi-Fi needs from being a network of convenience to being a critical backbone to classroom instruction."

Before implementing Smart Wi-Fi from Ruckus, the school district, with 23,000 students and 3,000 staff members, had wireless access only in certain parts of its schools, through sporadic placement of legacy APs. In areas where there was wireless coverage, the signals were often weak due to outdated technology and buildings that were constructed with older materials.

"It was virtually impossible to use devices in the classroom even when an AP was just down the hall," Smith said. "The network was geared towards small-scale laptop usage, but as time went on we realized we needed a wireless network that could be a true enabler of education in the classroom."

The dynamics of the Wi-Fi market is changing at lightning speed due to more sophisticated applications, users and devices swarming wireless networks."

— Selina Lo,
president and CEO,
Ruckus Wireless



After researching and testing available Wi-Fi systems, Smith and his team concluded that the ZoneFlex WLAN system would be the optimum choice to meet their needs. To blanket all 35 schools comprising 650 square miles, the district purchased 650 ZoneFlex 7363 802.11n indoor APs along with redundant ZoneDirector controllers to manage the network.

Prescription for Success

Central Utah Clinic is among a growing list of healthcare organizations turning to Smart Wi-Fi to support mobile computing. CUC is a specialty healthcare group with 25 clinics in and around Utah. The healthcare organization has implemented use of iPads among doctors and medical staff to support its "AllScripts" EMR application, giving doctors access to patient information from anywhere in the clinic. The application is also used to submit prescriptions for medication, order tests, diagnose symptoms and view or transmit X-rays and other radiology images.

"Previously, our clinic had a wireless network made up of Cisco access points," said Jamie Steck, IT director for

Central Utah Clinic. "Once we started using iPads to support our EMR application, which requires a connection to our Citrix application to run properly, we had major trouble. The Cisco system just couldn't provide the connection speeds needed to make the application work. With smarter Wi-Fi technology that can account for environmental changes, the AllScripts application performed so much faster and encountered no glitches whatsoever. We were amazed."

To provide adequate Wi-Fi coverage with built-in redundancy at its multiple clinics, CUC deployed 50 ZoneFlex 802.11n dual-band APs, along with ZoneFlex 3050 controllers. They also have deployed ZoneFlex 802.11n long-range point-to-point bridges to connect various remote locations, and will soon add more practices in Southern Utah.

"With all the advantages mobility in healthcare offers patients and medical staff, it's become critically important to all of our practices. But without a robust and easily managed Wi-Fi network to keep everything running smoothly, our plans would be a pipe dream," said Steck. "Ruckus has been the powerful cure we needed."



The ‘App Internet’

Analysts say the explosion of mobile computing applications heralds a fundamental shift in IT delivery.

Apple’s trademarked “There’s an app for that” slogan has become ubiquitous, inspiring countless newspaper headlines, a few Sunday sermons, at least one country song, a Sesame Street video and even a website devoted to generating snarky “app for that” jokes. However, the impact apps are having on the way we live and work is no joke.

The proliferation of application ecosystems to support smartphones, tablet PCs and other mobile devices heralds a new architectural framework that, according to the tech advisory firm Forrester Research, will one day replace traditional computing models. These new apps deliver rich experiences in an always-on, lightweight form that people can’t resist, resulting in a new model of computing that Forrester calls the “Application Internet.”

Forrester Research CEO and Chairman of the Board George Colony says the App Internet will dramatically alter the web as users know it, force today’s lead-

ing technology vendors to adapt to a new business environment and affect every job function in the business technology organization. And despite industry's preoccupation with cloud computing, Colony says that a standalone cloud or web solution is not the web architecture of the future.

"Two ways of computing have dominated over the past 20 years," Colony writes in his Forrester blog. "The first I'll call the 'Microsoft model,' where local personal computers do most of the work. The second model is the web/cloud model, in which most of the work happens on remote servers. Both are outmoded. The Microsoft model fails to leverage the economies of scale in the cloud; web/cloud fails to leverage the exponential growth in the power of local storage and processors."

In Forrester's view, App Internet architecture leverages powerful mobile devices to natively run applications that take advantage of resources on the web or in the cloud. Moving rich application features off back-end servers and directly onto client devices will require a dramatic shift in the way applications are developed, sold and delivered.

The appeal of mobile apps among users is undeniable. The research firm IDC projects the total number of mobile apps will reach 1.3 million by the end of 2011, compared to only 75,000 applications for personal computers. Berg Insights suggests that mobile app downloads will continue growing at a compound annual rate of 56.6 percent through 2015, when nearly 1 trillion apps will be downloaded globally.

According to Colony, Apple has established leadership in the App Internet space, and web-centric companies such as Google and Facebook are risky bets in the App Internet market due to their overreliance on web-based technologies. Forrester estimates that the App Internet market was \$2.2 billion in 2010 with a compound annual growth rate of 85 percent through 2015.

To succeed in this market, other established leaders that are borderline contenders in the market, such as SAP and Oracle, must determine how they are going to price these apps, and PC vendors such as HP and Dell must reform the PC experience to focus on app stores, which will be on every connected device in the future and serve as the keys to the Internet. Microsoft has important pieces to enable the App Internet — such as its application framework Silverlight — but must transition away from the old desktop licensing model to a world of low-cost, dynamic applications.

"The future is not written. Any or all of these vendors can change their strategy and move toward App Internet," Colony said. "Microsoft, Dell and HP are candidates for that."



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High-Tech Seniors



As baby boomers move toward retirement, wireless technology will play a key role in healthcare.

From muscle cars to modems, the Beatles to broadband, Woodstock to Wi-Fi, technology has been a central element of popular culture as defined by the “baby boom” generation. Having hands-on experience with everything from the first personal computers to the latest smartphones, baby boomers have a unique relationship with technology — different from any generation before or since.

While the stereotype is true — boomers do learn about technology from their children and grandchildren — they tend to be eager learners who actively share knowledge with their peers. This is illustrated by the fact that baby boomers make up the fastest-growing demographic on Facebook.

An estimated 78 million boomers are moving toward retirement age, and today’s retirement, assisted-living, rehabilitation, nursing and long-term care facilities need the technology infrastructure to support the social and safety needs of this rapidly growing population. Wireless technology is particularly well-suited to this task because systems are easy to install and use, highly reliable and cost effective.

Better Living through Technology

For tech-savvy boomers, high-speed wireless Internet access directly impacts quality of life. Studies show that social networking can limit isolation, loneliness and depression among aging adults by giving them a means to connect with loved ones and maintain relationships.

“Maintaining relationships with friends and family at a time in life when mobility becomes increasingly limited is challenging for the elderly,” said Dr. Sherry G. Ford, an associate professor of Communications Studies at University of Montevallo in Alabama. “Increased Internet access and use by senior citizens enables them to connect with sources of social support when face-to-face interaction becomes more difficult.”

According to a study by the American Journal of Public Health, which studied the relationship between social networks and dementia, 18 percent of women with low “social network” scores developed dementia, while only 10 percent of women with stronger social networks did.

“Social media sites can be a powerful ally for an older adult,” said Lawrence T. Force, professor of psychology and director of the Center on Aging and Policy at Mount Saint Mary College in Newburgh, N.Y. “The value of connections can add a sense of belonging and connecting across the lifespan. Virtual or face-to-face interactions, although different in nature, have the ability to create the power of presence.”

mHealth Market Booming

Beyond social connections, a wireless framework offers indispensable healthcare benefits. Facilities with campus-wide wireless coverage can provide nurse call capabilities with location tracking, monitoring for fall prevention and compliance to care plans, mobile staff communications, and networked cameras for security.

Wireless also enables a wide range of mobile-enabled healthcare (mHealth) technologies. A recent report by the Center for Technology and Aging predicts that the mHealth market will approach \$5 billion by 2014 and more than double by 2020, driven in part by adults’ rapidly increasing acceptance and use of technology in their lives. The report says mHealth technologies can help millions of older Americans as well as their physicians and caregivers in five key areas: managing chronic disease, using medications properly, avoiding risks, accessing online health information and staying well.

Chronic disease management technologies provide a range of messaging, monitoring and interactive communications functions to support interactive care processes, reduce unnecessary resource utilization and improve care outcomes. Medication adherence technologies have been rapidly expanding and can assist patients and caregivers with obtaining proper medication information, patient education, medication organization, dispensing, dose reminders and notification when doses are missed. Safety monitoring developers are focusing their attention on mHealth technologies that detect and ultimately prevent falls and wandering by monitoring patients’ location, balance and gait.

“mHealth changes the traditional delivery of healthcare, allowing for continuous, pervasive healthcare anytime, anywhere,” said David Lindeman, PhD, director of the Center for Technology and Aging. “With mHealth, providers, caregivers and patients have the opportunity to continuously monitor health conditions and access health information outside of either the physician’s office or the patient’s home. It promotes efficiencies in care-management and improves individual and population health outcomes.”



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Technology 2012

Gartner analysts identify important IT industry trends for the coming year.

Gartner, Inc. has highlighted top technologies and trends that will be strategic for most organizations in 2012. Gartner defines a strategic technology as one with the potential for significant impact on the enterprise in the next three years. Factors that denote significant impact include a high potential for disruption to IT or the business, the need for a major dollar investment, or the risk of being late to adopt. These technologies impact the organization's long-term plans, programs and initiatives.

Five top strategic technologies for 2012 include:

Media Tablets and Beyond: Users can choose between various form factors when it comes to mobile computing. No single platform, form factor or technology will dominate and companies should expect to manage a diverse environment with two to four intelligent clients through 2015. IT leaders need a managed diversity program to address multiple form factors, as well as employees bringing their own smartphones and tablet devices into the workplace.

Mobile-Centric Applications and Interfaces: The user interface in place for more than 20 years is changing. Windows, icons, menus and pointers will be replaced by mobile-centric interfaces emphasizing touch, gesture, search, voice and video. Applications themselves are likely to shift to more focused and simple apps that can be assembled into more complex solutions.

Contextual User Experience: Context-aware computing uses information about an end-user's or object's environment, activities, connections and preferences to improve the quality of interaction with that end-user or object. A contextually aware system anticipates the user's needs and proactively serves up the most appropriate and customized content, product or service.

App Stores and Marketplaces: Application stores provide marketplaces where hundreds of thousands of applications are available to mobile users. Gartner forecasts that by 2014, there will be more than 70 billion mobile application downloads from app stores every year. This will grow from a consumer-only phenomenon to an enterprise focus. With enterprise app stores, the role of IT shifts from that of a centralized planner to a market manager providing governance and brokerage services to users and potentially an ecosystem to support entrepreneurs. Enterprises should use a managed



diversity approach to focus on app store efforts and segment apps by risk and value.

Cloud Computing: Cloud computing has the potential for broad, long-term impact in most industries. While the market remains in its early stages in 2011 and 2012, it will see the full range of large enterprise providers fully engaged in delivering a range of offerings to build cloud environments and deliver cloud services. Enterprises are moving from trying to understand the cloud to making decisions on selected workloads to implement on cloud services and where they need to build out private clouds. Hybrid cloud computing, which brings together external public cloud services and internal private cloud services, as well as the capabilities to secure, manage and govern the entire cloud spectrum, will be a major focus for 2012.



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NEWS BRIEFS

Sean Gallagher Joins IPC Team

Sean Gallagher has joined IPC as our ShoreTel Support Engineer for the Capitol Region. He will be offering ShoreTel support to our clients and will also be working with the implementation team. Sean comes to IPC with more than six years of experience in ShoreTel system administration. He helped to support and grow a ShoreTel install base from 12 sites and 200 phones to more than 65 sites and 1400 phones at a multi-state, mid-Atlantic banking organization.



Sean previously utilized his engineering degree and automation interests in the pharmaceutical industry, testing and documenting process configurations, process improvements, processing investigations, and factory/site acceptance tests. Sean moved with his wife and two children to Virginia from Pennsylvania in 2006. He enjoys free time with family, musical interests, sports, and other activities.

He can be reached by phone at 804.622.7244 X7244 or by email at sgallagher@ipctech.com.

Article Spotlights Banks, IPC

IPC Technologies and Ken Banks, IPC founder and president, were featured in a recent Richmond Times-Dispatch story about Needle's Eye Ministries, a nonprofit workplace ministry now in its 35th year of operation.

Needle's Eye is an interdenominational Christian group that encourages and supports business and professional people in implementing and integrating faith at work, at home and in the community. Banks and IPC are actively involved with the organization's small group ministry, which includes about 60 small groups with about 400 participants that meet regularly, as well as several career transition groups that provide spiritual support for unemployed people in the area.

The newspaper noted that Banks got involved in Needle's Eye more than 20 years ago. He told the paper that it transformed the way he views his professional life, which became less focused on the bottom line as the only goal of business and more about the "servant leadership" that Needle's Eye seeks to foster.

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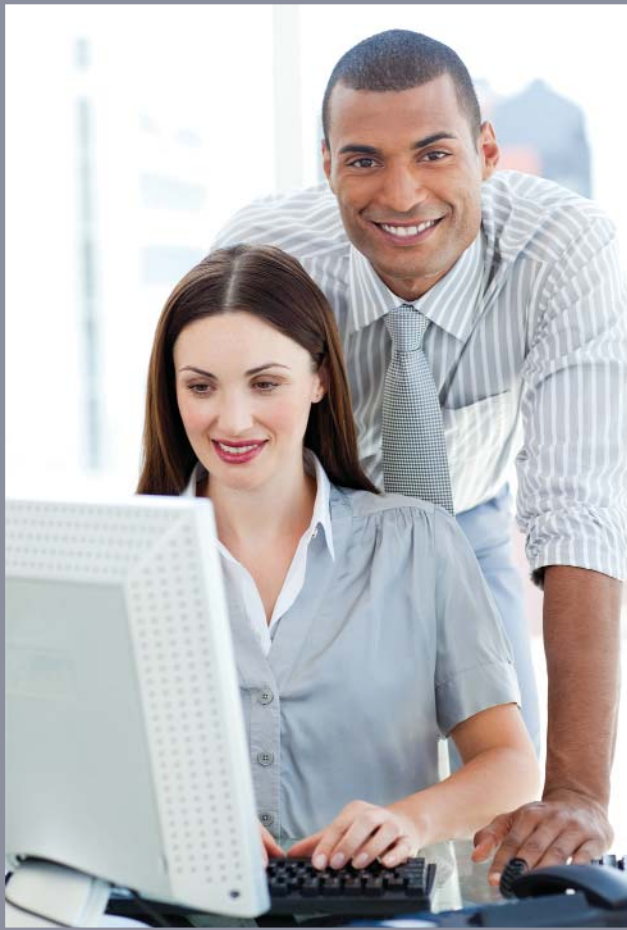
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