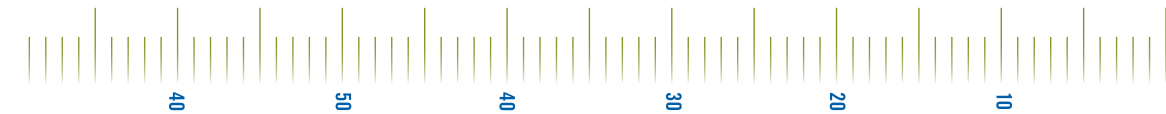




# A Technology Touchdown

The Indianapolis Colts up their game with digital playbooks for teammates.



"Football can go on without technology, but it enhances the game experience for our fans and it enhances the play of our players," says Ryan Fannin, the Indianapolis Colts' director of football information systems.



The 2012 season marks a new era of football for the Indianapolis Colts. After its first losing season in a decade and an off-season of management and roster upheaval, the team made a fresh start with a new head coach, a new quarterback and new mobile technology to give it a competitive edge.

Not only did the NFL franchise replace veteran Peyton Manning with rookie quarterback Andrew Luck, but head coach Chuck Pagano also ditched traditional paper playbooks in favor of digital versions on Apple iPad devices.

The 20-pound tomes have given way to 1.4-pound devices that include all the plays and allow players to watch game films at home instead of at the Colts' practice facility.

"Pagano feels it's a competitive advantage to give players all the information at their fingertips and for them to learn in a way they have grown accustomed to," says Ryan Fannin, the Colts' director of football

By Wylie Wong



# I.T. SCORES ON THE GRIDIRON

Indianapolis Colts go long with a state-of-the-art wireless network, paperless playbooks and an interactive fan app.

## A STORIED FRANCHISE



1984

Colts leave Charm City for Indy

9 CONSECUTIVE  
PLAYOFF APPEARANCES

Colts' 2002-2010 track record

442-390-7

Win, loss and tie record 1953-2011

2 LOMBARDI TROPHIES

Colts won the Super Bowl in 1970 and 2006



Located about 13 miles from Lucas Oil Stadium, the Colts' HQ and practice facility previously suffered from limited Wi-Fi.

information systems. "It's not about pen and paper anymore. We are able to tie a video with a diagram of a play. It helps players learn, and it's a huge benefit for the team."

In March, the Colts' IT department purchased 120 iPad devices for the team's 90 players and 20 coaches, plus 10 spares in case of loss or damage. The team standardized on the third-generation, 64-gigabyte Wi-Fi model.

### Technology Hits the Field

NFL teams have rapidly adopted iPad devices over the past two years. The Baltimore Ravens and Tampa Bay Buccaneers started the trend by equipping their players with tablets in 2011; this year, about a dozen

more teams have followed suit, including Indianapolis, the Green Bay Packers and the Miami Dolphins, according to the NFL.

Pagano witnessed the benefits of the iPad devices and digital playbooks firsthand while serving as Baltimore's defensive coordinator in 2011. With the devices, coaches can more quickly and efficiently create and distribute playbooks for each week's game. Instead of having coaching assistants stand over a copier for hours each week printing and binding paper playbooks, the coaches can electronically deliver the digital versions to players immediately with the press of a button.

For players, the biggest advantages are convenience and mobility. "It's lightweight," says Coby Fleener, a 24-year-old tight end for the Colts. "We have a heavy-duty playbook, and now all that information is on the iPad. We don't have to worry about carrying tons of paper."

The team also provides game films and video of their practices over streaming video, allowing players to review game and practice footage on their iPad devices. In past seasons, Colts players primarily watched game film using specialized computer equipment at team meeting rooms at the Colts' practice facility. "It's much easier," Fleener says of the iPad devices. "You can watch from home."

Providing players with anytime, anywhere access on the devices makes a big difference, Fannin says. When the Colts piloted tablets with several players in 2011, the team discovered that players spent more time studying their digital playbooks and viewing game film.

### Wide Open with Wi-Fi

This spring, the Colts were in desperate need of a Wi-Fi upgrade. Fannin previously installed a

15% → 100%

Coverage before the upgrade

Coverage after the upgrade — used by players, coaches, media and office staff

## WI-FI CONVERSION

## FANS GET IN ON THE ACTION

23,000

Fans that can be accommodated on the Lucas Oil Stadium's wireless network

4

Key coverage areas: player huddle rooms, training rooms, locker rooms and indoor training areas

5 SECONDS

Time it takes for an instant replay video to appear on the fan app in stadium

Number of Cisco Systems Aironet 3602 Series access points deployed



Three HP ProLiant DL360 servers support instant replay on the Colts' fan app. Sixteen CDW workers were on hand for the first three home games to provide tech support and guidance to fans new to using the app.

48GB OF RAM  
1.2TB RAID 5 STORAGE

Processing power behind each of the HP servers

500

Number of antennas powering the stadium's high-capacity distributed antenna system

### SOURCES:

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**[110,000]**  
The number of downloads of the Colts' mobile app for smartphones as of late October

**The 2012 NFL draft reunited tight end Coby Fleener and quarterback Andrew Luck, who played together at Stanford.**

## CDW TO THE RESCUE

Ryan Fannin, the Colts' director of football information systems, faced an emergency last summer: The team's firewall died in the middle of the night, and he was about an hour's drive away at training camp in Anderson, Ind.

Fannin called CDW Network Engineer Steve Rue, who jumped out of bed, commuted to his office to find a spare firewall and then drove to Colts' headquarters to replace the faulty hardware. When workers arrived later in the morning, all network services and applications were working without a problem.

"I have a small staff of three people, so it's hard to specialize when we're all putting out fires," Fannin says. "I had no doubt in my mind that the CDW network team that works with firewalls every day knows more about [them] than I do. I'm comfortable having that person work to protect our business."

This year, CDW went onsite and helped the Colts upgrade its network and deploy and fine-tune a wireless network. CDW engineers performed an initial site survey to determine the placement of the access points, and then performed another survey once the installation was complete, says CDW Senior Engineer David Hillman.

outdoor practice fields, locker room and training rooms.

The Wi-Fi network is open to everyone, including players, coaches, employees, guests and the media. For security, the Wi-Fi network is separated into its own virtual LAN, so people using it are walled off from corporate network resources, Fannin says.

Since its installation, the wireless network has worked perfectly, providing ample bandwidth, Fannin says. "We haven't touched the wireless since it was installed," he says. "We've had no problems. It's rock-solid."

### De-Fense!

Football playbooks are closely guarded intellectual property, so security is paramount. But the digital playbooks are actually more secure than regular paper playbooks, Fannin says.

The Colts subscribed to AirWatch's cloud-based mobile device management software, which allows the IT staff to enforce security policies such as password protection. And if the devices are lost or stolen, Fannin can remotely erase all the data.

In contrast, it's much easier for paper playbooks to get into the wrong hands.

"With a paper playbook, you can take it to Kinko's and make a copy of it," Fannin says.

While coaches receive full access to iPad features, the Colts' IT department uses AirWatch to lock down each player's device. Players cannot surf the web, e-mail or download apps. When they log in, they are granted access to only two apps: the digital playbook app and the video app for watching game film or video of their practices.

"It's treated as a playbook. Other teams may allow players to surf the Net during meetings, but to us, this is a playbook and not a toy," Fannin says.

### Preparing for Kickoff

Coaches provide players with a full playbook in training camp, and then during the season, they break it down based on their game plan and create smaller playbooks for each week's opponent.

Using Microsoft Office 2010 on notebook PCs to build the playbooks, the coaches create PDFs of the material and upload these to the playbook app maker's servers.

## FAN-FRIENDLY EXPERIENCE

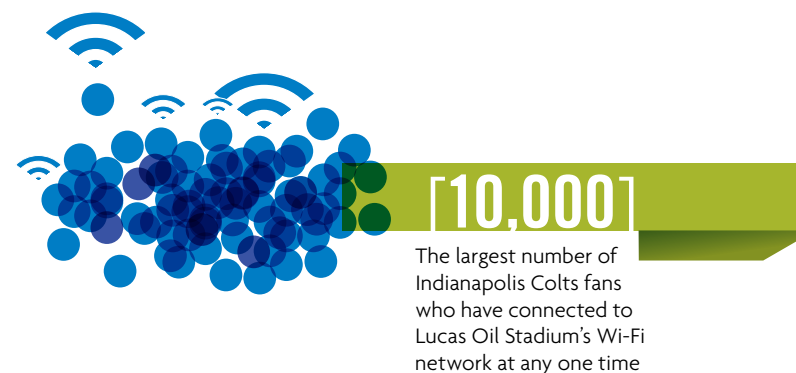
The Indianapolis Colts' free mobile app creates a better experience for spectators at Lucas Oil Stadium.

Fans with iPhone and iPad devices and Android smartphones and tablets can use the free app to check traffic before they drive to the game. Once there, they can listen to the radio feed, check statistics, watch video highlights from other games and watch replays.

"It's a mandate from the NFL to make sure that fans do not miss anything by being at the game," says Ryan Fannin, the Colts' director of football information systems. "We want fans to know that the best place to see a Colts game is at a Colts game, and that they will not miss out on anything."

Three HP ProLiant DL360 servers provide exclusive video replays to fans at the stadium. The video replay app automatically edits plays and delivers them to the team's mobile app. Within five seconds of every play ending, fans can watch a replay from three different angles, Fannin says.

In preparation for Lucas Oil Stadium's hosting the Super Bowl last year, AT&T, Verizon and Sprint upgraded the Distributed Antenna System network to boost cellular coverage throughout the stadium. Chris Hayes, the IT manager for Lucas Oil Stadium and the Indiana Convention Center, also upgraded the stadium's Wi-Fi network by doubling the number of access points.



The coaches name their playbooks and pick an expiration date (generally the day of the game), so that once the game is completed, the playbooks are automatically erased from the players' iPad devices, Fannin says.

When players log in to their devices from the practice facility or from home, they can download the latest playbook from their coaches as well as daily practice schedules, travel itineraries, motivational notes and strategic tips from their position coaches, Fannin says. The digital playbook is more than a PDF. With the app, players can select categories of plays. Coaches can also attach a video to a specific play, so players can see the play in motion.

Fleener, a rookie from Stanford, says he mostly uses his iPad at home to study the playbook and review game film. But he also takes the device with him while traveling for road games, so he can study on the plane.

The tight end used paper playbooks in college, and notes that the digital version has its pros and cons. "The pros are its portability. The cons are that it's hard to write and take notes," Fleener says.

With the digital playbook app, players can highlight items, draw with their fingers and type notes on a virtual keyboard, but it's not as natural as pen and paper, Fannin concedes.

### A Competitive Advantage

The Colts used to spend only \$15,000 a year on paper and toner to print paper playbooks, so the team isn't saving money from its purchase of the iPad devices and network and Wi-Fi gear.

The return on investment, however, comes from increased productivity, better security of playbooks and the fact that players spend more time studying their playbooks and game film. The team has gained a competitive edge against other teams that are not using the devices, Fannin believes.

Pagano, who was diagnosed with leukemia three games into the regular season, took a leave of absence this fall for treatment. The team has continued to win games in his absence. The foundation that Pagano built — from coaching philosophy to the mobile technology — has made an impact, Fannin says.

"It's important for us to be on the cutting edge of technology. We need any advantage we can get to stay ahead of other teams," he says. "Players are looking at video and their playbooks more. It's more than worth the expense to have all that information at their fingertips, any time of day."