

# BYOD in Education

At-A-Glance

## The Cisco Bring-Your-Own-Device Solution for Education: Getting Mobile Devices Simply and Securely Connected

For teachers, school districts, and the IT professionals who support education, Bring Your Own Device (BYOD) is a powerful wave that hasn't yet crested. Whether students are in school or college, they've grown up learning, living, and playing on mobile devices—and they want to use them inside and outside the classroom. Likewise, teachers, administrators, and staff are working smarter and more efficiently thanks to their tablets and smartphones.

Attempting to force the growing numbers of people on school and college campuses to abandon their mobile devices, even for a few hours, isn't the solution. The answer instead is to embrace BYOD as an opportunity to engage learners and enhance staff productivity while getting the most out of present technology platforms.

Yes, there are challenges. Policy preparation, security, control, training, network capability, and resiliency are some of the critical issues. This puts schools under intense pressure to create and implement policies and deploy the appropriate supporting technology, while controlling costs.

### The Upside of BYOD

Today, many schools are shifting their focus from prohibiting the use of mobile devices on campus, to embracing BYOD as a way to enhance teaching and learning, improve student engagement, improve operational efficiencies, boost staff productivity, expand collaboration, and expand the capabilities of existing technology infrastructures.

The right BYOD solution enables schools to protect their technology investment by building on what they already have while retaining the flexibility to adapt to new services, solutions, and devices as they emerge.



### The Challenges

The days of static capacity planning are long gone. Schools have entered a new era of “flash traffic” where multiple devices using multiple applications are attempting to connect anywhere on campus, at any time. In this era, the latest release of a new tablet can immediately create spikes in demand—and traffic congestion—on the network.

With students, faculty, and staff all using their own devices, IT and school district leaders need help with policies, capacity, integration, and device access in order to deliver a superior user experience in a manageable, secure, and cost-effective way. How can schools encourage connectivity if district policy limits inappropriate access to confidential parts of the school network or to personal email, IM, or the outside Internet?

### BYOD Challenges at a Glance

**Scalability:** How can you accommodate in real time the explosion of new devices and applications that students and staff want to use on your networks?

**Security:** How can you determine who, what, when, where, how, and how many users and devices access your network?

**Manageability:** How can you manage users and devices, and ensure compliance to policies no matter how one is connected or where they are located on your network?

**Simplicity:** Is there a way to handle these issues that doesn't involve new layers of complexity?

**Budget:** How can your systems handle these demands while controlling costs?

**Accountability:** School systems at all levels are being held to extremely high standards. It's critical to show improvements in student outcomes while justifying all technology purchases in terms of how they help the educational experience and increase efficiency.

### The Assumptions

**Devices:** More than three network devices per user will be commonplace within two to three years.

**Connectivity:** Two out of three new network devices attaching to your network in the next two to five years will be wireless only.

**Provisioning:** Personal devices will need to be reprovisioned more frequently (because of personal use) than a device provided by your educational institution.

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## The Solution

Cisco enables you to seize the unique teaching and learning opportunities opened up by the rapid evolution of mobility and smart, portable devices coming onto your network. Cisco provides a seamless, simple, and secure solution, built upon a high-performance, highly intelligent network.

We work with educational institutions to implement cost-effective, well-planned, network-based solutions to create 21st-century connected learning environments.

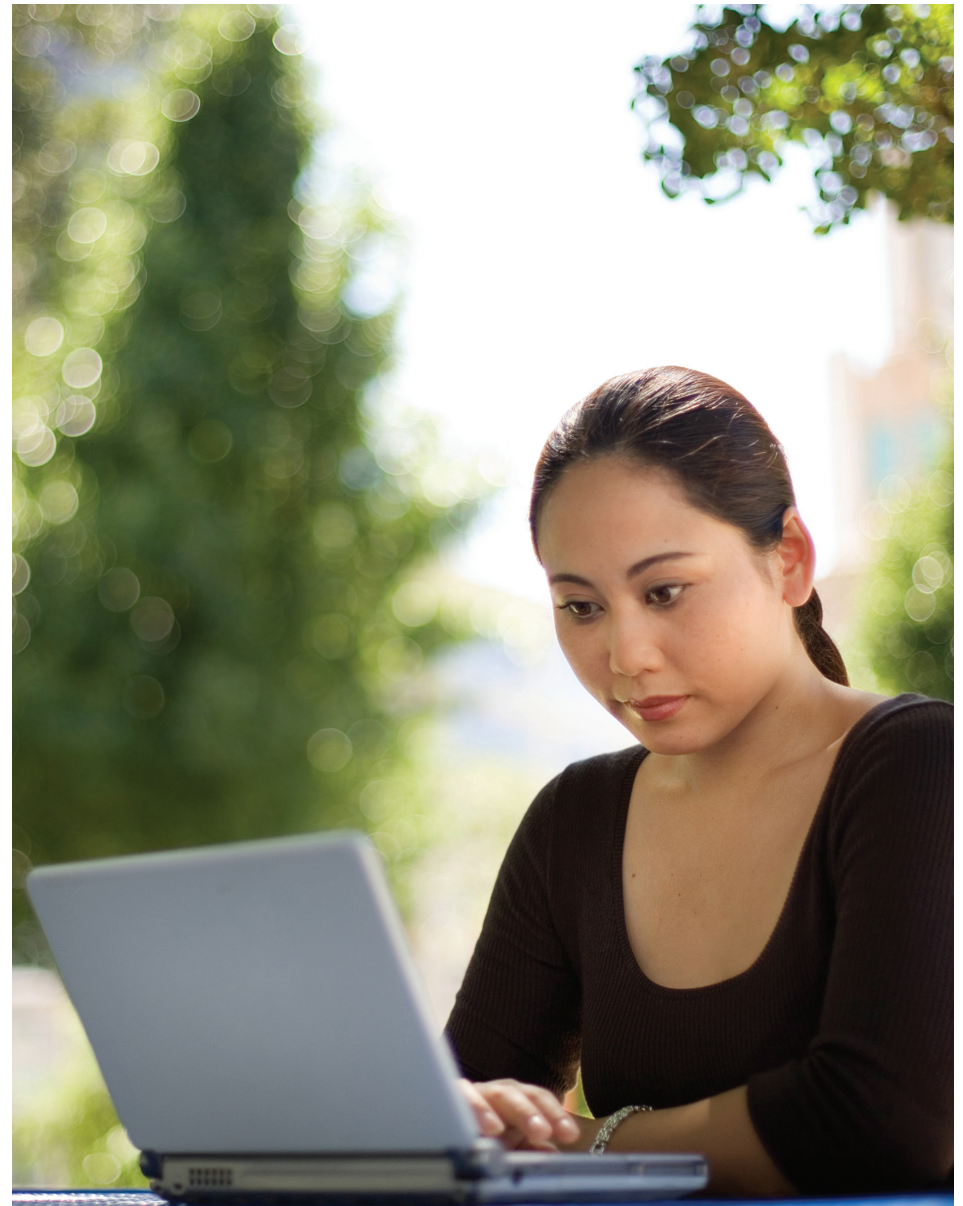
Facilitating the rapid deployment of new applications with minimal disruption, we create a manageable migration path while helping schools maintain a focus on academic achievement and budget requirements.

The Cisco® BYOD solution for education makes connecting to a school's network simple and secure. With Cisco, you get expertise, experience, and service. Using our BYOD solution, an institution's network can dynamically and safely adjust in real time to an exponentially growing and disparate number of devices and applications—all demanding immediate and secure connectivity.

The foundation of Cisco's BYOD solution is a unified access network crafted from the industry's broadest portfolio of routers, switches, WLAN controllers, WLAN access points (including the Cisco Aironet® 3600 Series wireless access point) and VPN technology. Cisco's CleanAir™ technology is the first chip-level, proactive, automatic interference protection solution, improving reliability and performance. Cisco's VideoStream technology provides wired-network-like delivery over wireless with stream prioritization, resource reservation, and reliable multicast over wireless. The result is improved economics, unprecedented flexibility and scalability, and a BYOD environment that encourages cooperation and learning rather than chaos.

Security for Cisco's BYOD solution is coordinated by the Cisco Identity Services Engine (ISE), the industry's only single-box offering that combines authentication, authorization and accounting (AAA) along with profiling, posture assessment, and provisioning for wired and wireless networks. The Cisco BYOD solution also provides the industry's first context-based and persistent VPN connectivity with Cisco AnyConnect™ technology.

The effect is to unify and simplify BYOD policy creation and management while delivering unprecedented flexibility and scalability. The Cisco ISE also provides guest and visitor management capability, empowering visitor access via a simplified interface, with complete auditing and accountability of device users.



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## Why Cisco?

Cisco offers:

- The best experience for any user, regardless of device or desktop (native or virtual), with new enhancements in Cisco ClientLink (up to 65 percent improved throughput), Cisco VideoStream, 802.11r, and 802.11u.
- Lower operating expenses because less time and resources are consumed.
- A single policy management interface, including guest, posture, device profiling, and network access. Cisco also provides data security in the network (on and off premises) to help ensure IP protection.
- Simplified deployment and accelerated troubleshooting.
- Easy control and savings: Management of the Cisco BYOD solution for education is provided by Cisco Prime™ Network Control System (NCS), the industry's only wired and wireless management offering that correlates user identity with policy through a "single pane of glass" view. Cisco Prime unifies and simplifies BYOD user, device, and application monitoring, control, and troubleshooting.

## How Cisco BYOD for Education Works

As students, staff, and faculty connect their devices to the network using a single service set identifier (SSID), the Cisco solution takes over. Users are completely unaware of the seamless, behind-the-scenes actions:

- The network uses 802.1x Extensible Authentication Protocol (EAP) authentication.
- The Cisco ISE uses a number of device fingerprinting variables to accurately identify the device as school-issued or a personal asset.
- An appropriate policy is determined using a combination of criteria such as who the user is, what device is being used, the location and time, and so on.
- The Cisco ISE then enforces the policy by placing each device on an appropriate VLAN while the device remains connected on the same SSID.
- The Cisco Wireless LAN Controller automatically grants access to resources as appropriate, based on policy.

## For More Information

For more information about simple, secure networks with the Cisco BYOD solution for education, visit: [www.cisco.com/go/psbyod](http://www.cisco.com/go/psbyod).

Figure 1 User experience

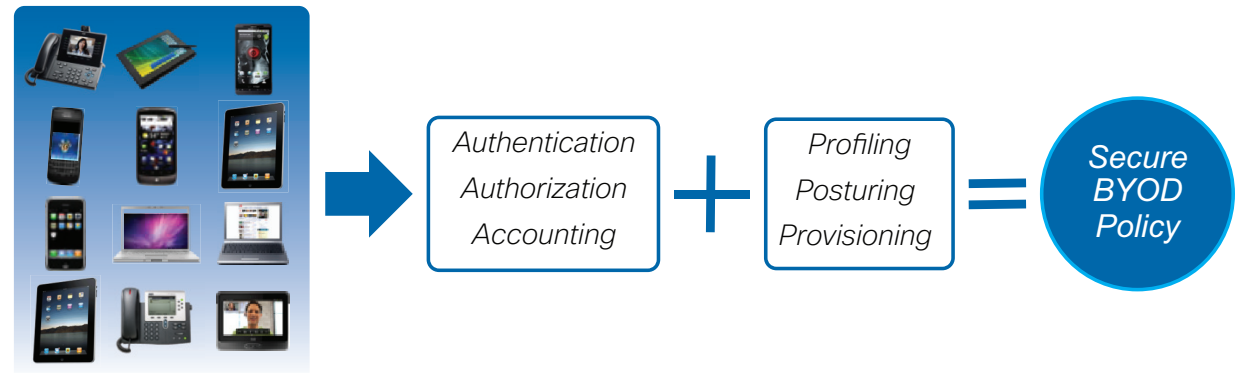


Figure 2 How it works

