Bytes of Learning

Powerful Tools for Learning

Internet-connected Learning: What it is and Why it was Created

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UltraKey 5.0 by Bytes of Learning introduces a new technology and a new concept in computer-based learning management that we call *Internet-connected learning*. This article explains the technology that underlies Internet-connected learning, how it works and what the educational impact is.

What is Internet-connected Learning?

Internet-*based* learning involves users accessing a learning program on a web site or web server. If the user's performance is recorded, the data is stored on the web site.

Internet-*connected* learning is the ability for students and teachers to remain connected with a learning environment *through* the Internet while using an instructional application installed on the user's laptop or desktop computer. The application or instructional software exchanges records, options and practice content with a server software application located on a computer or server connected to the same network, wide area network or the Internet.

The result is that students can continue their learning anywhere while their progress and use of the instructional software is recorded at the school or district data server. Likewise, teachers can monitor student progress, prepare instructional content, generate reports and adjust program settings anywhere. "Anywhere" is any workstation that is connected to the Internet at school, home or other places of convenience.

UltraKey 5.0 is the first example of Internet-connected learning in action.

The Underlying Technology

UltraKey is specifically designed for professional instruction because it features a fully integrated learning management system that fits the definition of Internet-connected learning. The system records student progress, generates class reports, regulates the operation of the UltraKey 5.0 instructional software according to options set by the teacher, and manages the content used in typing practice and testing.

The UltraKey 5.0 software family achieves Internet-connected learning using two separate applications:

The UltraKey 5.0 instructional software provides the instruction and performs all the management functions such as generating reports, applying new options settings and adjusting content material. The UltraKey 5.0 instructional software can manage a local directory of records or it can interact with the UltraKey 5.0 Data Server software.

The UltraKey 5.0 Data Server software stores and retrieves all the management data and exchanges the date with an unlimited number of UltraKey 5.0 instructional software installations. The data is

segmented by host. Usually one host stores the classes and records of one school.

The UltraKey 5.0 instructional software and the UltraKey 5.0 Data Server software exchange data with each other using Internet protocol (IP). This is the same protocol that email software uses to send and receive email messages over the Internet. The UltraKey 5.0 instructional software and server software can exchange information over any network, wide area network or Internet connection. No permission settings have to be set for the user and the user has no direct access to the server software – more on this later. A single installation of the UltraKey 5.0 Data Server software can manage many hosts, so a school district can locate all UltraKey data on a single server.

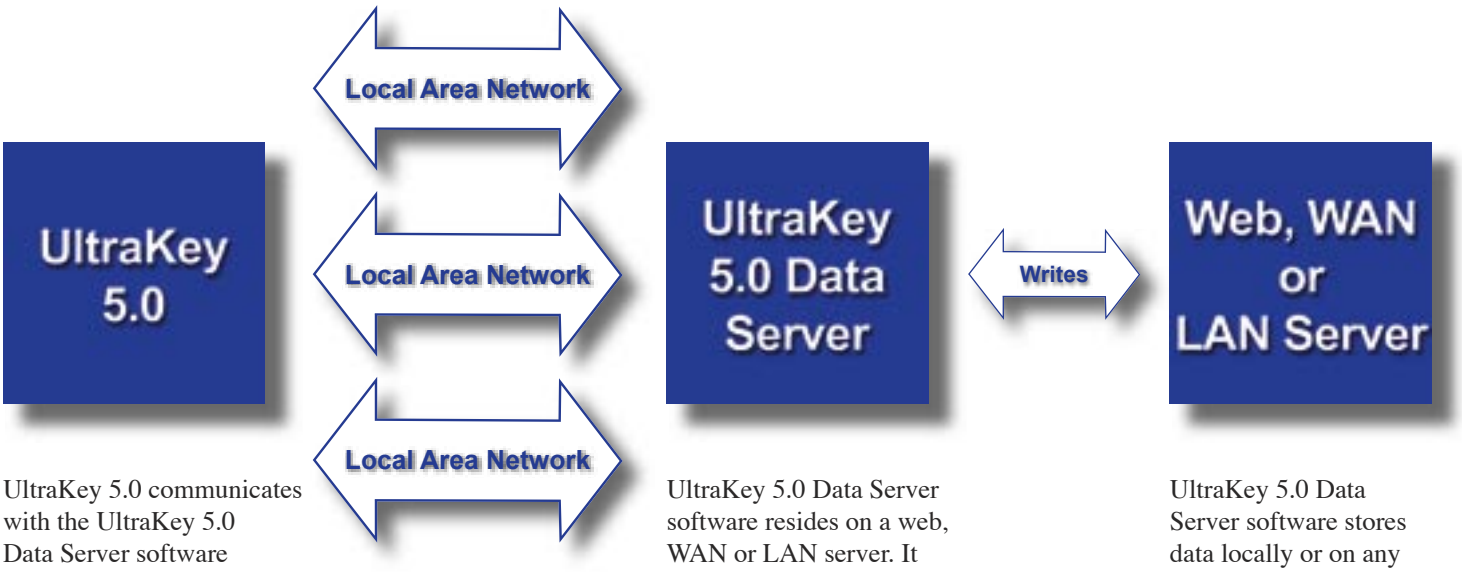
How UltraKey's Internet-connected Learning Works

When a user starts UltraKey 5.0, the software scans for local installations of the UltraKey 5.0 Data Server software and any known remote installations. If the data server software is installed on the local network, the UltraKey application and server software can immediately see each other. On first operation, the user must click the Search Network button. For subsequent operation, the instructional software remembers any hosts to which it has connected.

If the UltraKey 5.0 Data Server software is installed remotely on a wide area network or a server connected to the Internet, then the UltraKey instructional software must know the server hardware's IP address. An IP address is the four part number (e.g. 192.168.1.1) that uniquely identifies computing devices.

Internet-connected Learning System

UltraKey 5.0 communicates data with the UltaKey 5.0 Data server software through any local, wide area or Internet connection.



UltraKey 5.0 communicates with the UltraKey 5.0 Data Server software using Internet protocol. UltraKey5.0 equires no direct access to the server.

Communication using Internet Protocols

UltraKey 5.0 Data Server software resides on a web, WAN or LAN server. It sends and recieves data from UltraKey 5.0 using Internet protocol.

UltraKey 5.0 Data Server software stores data locally or on any Web, WAN or LAN server. Data is only accesible through the UltraKey 5.0 program.

To allow students to connect with the Data Server software through the Internet without knowing or sharing IP information, managers can create UltraKey 5.0 connection keys, which are files users can place on their desktops. When a connection key is opened, UltraKey 5.0 picks up the encrypted host IP address and automatically communicates with it through the Internet.

When the UltraKey 5.0 instructional software communicates with an UltraKey 5.0 Data Server software installation, UltraKey lists the available hosts. The user selects a host and connects to it, selects his or her class, and then selects or creates a record according to the options set for that class. Users can check a box so that UltraKey automatically selects the particular host on subsequent uses.

The teacher manages the host, classes, student records, option settings and custom practice material using the same UltraKey 5.0 instructional software as the students use. On the opening screen, the teacher clicks the Management button providing the teacher a list of hosts to access. Teachers log in by name, which the software recognizes for different levels of authority. Three levels of authority exist: general administration, host management, and class management. All data access is password protected and privileges vary with the person who is accessing. The Management button can be hidden to prevent regular users from accessing the Management area.

Why UltraKey's Internet-connected Learning was Developed

As security concerns have increased, most school districts have reserved network setup authority for authorized technicians, making it less and less feasible and sometimes impossible for the classroom teacher or school technology co-ordinator to adjust network permissions without calling in the district technician.

UltraKey 4.0 has been carefully engineered for network operation but the best possible network engineering still requires appropriate permission settings on the network and a free flow of network traffic. This has led to increasing challenges for customers using conventional network software such as UltraKey 4.0. The increasing prevalence of anti-virus software and other protection measures has made network operation less and less practical when conventional technology is used. In some cases, we have found that educators have had to stop using UltraKey 4.0's powerful learning management system through no fault of UltraKey 4.0 but simply because the protection-oriented environment no longer permits it.

Internet Protocol or IP is a communication method that does not involve file writing or reading, and therefore does not require permissions to be set on a network. So installation of the UltraKey 5.0 instructional software requires no network configuration and its communication with the UltraKey 5.0 Data Server software cannot be hampered by anti-virus programs.

The use of server-resident applications like the UltraKey 5.0 Data Server software eliminates the need for anybody other than the network administrator to have access to the central server. A remote copy of the UltraKey 5.0 Data Server software communicates with UltraKey 5.0 instructional software by exchanging packets of information through a designated data port in the server firewall. Any communication of this nature including email requires such a port. Ports are not people access points; they are exchange points. The end result is that data is maintained but nobody actually accesses the data server, so security issues are minimized.

Bytes of Learning developed the UltraKey 5.0 Data Server software technology to take advantage of IP and eliminate the practical issues faced by teachers trying to manage conventional networking software

in today's protection-oriented environments. The UltraKey 5.0 Data Server software technology also enables Internet-connect learning which provides for seamless learning and management communication anywhere.

What is the Future of Internet-connected Learning?

Bytes of Learning recognizes that schools need flexible technology solutions that meet a variety of conditions and learning needs. Internet-connected learning immediately combines the advantages of work-station based applications with the benefits of Internet communication. But more can happen.

Suppose you could visit the Bytes of Learning web site, log into a management tool and review how your students are progressing across the entire district. Suppose you could assess the average grade four student performance relative to grade four students across the nation. Then suppose you could set the challenge levels for grade four students across your district or at your school, to align with national standards. Internet-connectedness makes all this entirely possible without creating an ongoing dependency on Internet connection. And that's the future we see not just in keyboarding instruction but any curriculum area.

For further product details and specifications, please visit: www.bytesoflearning.com

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