BEAVERTON SCHOOL DISTRICT

School Board Work Session
April 6, 2016
Strategic Plan Report Summary

Title: Technology Report

Objective: The objective of this document is to report the state of technology systems functionality and on strategic key measurements of student and staff technology access, as identified by the Board.

Data: Data on percentage of staff and students reporting adequate access to technology is provided through the 2014-15 staff and student surveys. Additional data sources for this report include the Help Desk System, Asset Management System, Server and Networking system log files.

Measurements 1 and 2: Staff and student reporting access to technology

Measurement	2012/13	2013/14	2014/15 Goal	2014/15	2015/16 Goal
% teachers reporting adequate access to technology to support their instruction	--	**46.5%**	**48%**	**49.5%**	**60%**
% students reporting adequate access to technology to support their learning	--	**83.7%**	**88%**	**85.4%**	**93%**

% teachers reporting adequate access to technology to support their instruction

Beaverton School District	2012/13	2013/14	2014/15
All Teachers		46.5%	49.5%
Male		50.2%	59.7%
Female		47.7%	51.7%
Other			
Asian			50.0%
Pacific Islander			80.0%
Black			100%*
Hispanic		42.5%	33.3%
American Indian/Alaskan Native			76.9%
White		50.2%	52.2%
Multiracial			73.3%
Heterosexual		48.5%	53.7%
LGBQ		41.7%	52.6%

* 4 responses

% students reporting adequate access to technology to support their learning

Beaverton School District	2012/13	2013/14	2014/15
All Students		83.7%	85.4%
Male		82.0%	84.8%
Female		86.0%	86.7%
Asian		84.4%	86.2%
Pacific Islander		83.8%	85.4%
Black		77.8%	79.1%
Hispanic		84.2%	84.3%
American Indian/Alaskan Native		80.4%	80.7%
White		84.8%	83.8%
Multiracial		79.6%	85.0%
Heterosexual		80.3%	85.2%
LGBQ		74.7%	79.3%

Student responses by school

School Name	2012/13	2013/14	2014/15
K-5 Schools			
Barnes Elementary		86.6%	100%
Beaver Acres Elementary		94.1%	93.5%
Bethany Elementary		89.8%	92.7%
Bonny Slope Elementary		95.9%	99.1%
Cedar Mill Elementary		100.0%	94.4%
Chehalem Elementary		86.6%	92.9%
Cooper Mountain Elementary		92.5%	91.1%
Elmonica Elementary		82.0%	92.9%
Errol Hassell Elementary		93.4%	92.1%
Findley Elementary		88.0%	94.0%
Fir Grove Elementary		90.0%	
Greenway Elementary		75.8%	79.0%
Hazeldale Elementary		87.5%	89.8%
Hiteon Elementary		95.7%	94.3%
Jacob Wismer Elementary		88.2%	66.7%
Kinnaman Elementary		92.5%	93.6%
McKay Elementary		73.2%	98.0%
McKinley Elementary		84.2%	89.9%
Montclair Elementary		93.0%	95.7%

Nancy Ryles Elementary		89.7%	95.9%
Oak Hills Elementary		95.4%	86.0%
Raleigh Park Elementary		89.7%	89.2%
Ridgewood Elementary		97.6%	95.9%
Rock Creek Elementary		95.3%	93.5%
Scholls Heights Elementary		92.1%	88.5%
Sexton Mountain Elementary		88.8%	87.8%
Terra Linda Elementary		92.6%	99.0%
Vose Elementary			94.2%
West Tualatin View Elementary		88.1%	86.5%
William Walker Elementary		76.0%	90.6%
K-8 Schools			
Aloha-Huber Park			100%
Raleigh Hills K-8		98.5%	97.5%
Springville K-8		90.1%	94.5%
6-8 Schools			
Cedar Park Middle		74.1%	83.9%
Conestoga Middle		71.2%	86.0%
Five Oaks Middle		66.3%	76.0%
Highland Park Middle		86.4%	85.4%
Meadow Park Middle		69.2%	89.6%
Mountain View Middle		70.8%	74.2%
Stoller Middle		64.1%	86.1%
Whitford Middle		84.4%	87.3%
6-12 Schools			
Arts & Communication Magnet Academy		84.9%	74.0%
Health & Science		71.3%	83.3%
International School of Beaverton		67.3%	78.2%
9-12 Schools			
Aloha High		82.4%	67.7%
Beaverton High		84.0%	70.0%
Community School		81.2%	93.8%
School of Science & Technology		63.8%	81.4%
Southridge High		85.3%	85.7%
Sunset High		89.2%	87.3%
Westview High		81.2%	100%

Successes:

- Student satisfaction levels continue to remain high.

Issues:

- Staff perception requires further research to determine factors contributing to lack of adequate technology to support their instruction. Examples could include: internet access, training, equipment age or lack of peripheral equipment such as projectors and printers.

Action Plan:

- Work to increase technology support for students and staff continues through bond and general fund investments and is summarized in this report. While not inclusive of all projects within IT, the projects below represent work aligned to increasing staff and student satisfaction of how technology supports their work.

Technology Systems – 2015/16 School Year

Infrastructure Improvements

Technology plays a vital role in student learning and the support of instruction begins with a solid infrastructure. We are concluding our second year of significant infrastructure improvements to support staff and students use of technology in learning.

Internet Access Increase

District-wide, demand for internet access continues to increase. At the start of the 2015/16 school year, the District internet connection was increased from a 2 to a 3 Gigabit connection for the primary connection to the internet. In preparation for the deployment of student computing devices as part of the FutureReady year one implementation, the District internet connection was increased again in December 2015 to the current 5 Gigabit connection. As of March 2016, we regularly experience peak usage of 80% of our available connection capacity.

The National Educational Technology Plan advises planning for a 40 Gigabit connection by 2018 for a school district of our size. The Beaverton School District is working collaboratively with the Northwest Regional ESD and surrounding districts on a "Dark Fiber" project that will provide the Beaverton School District with a 40 Gigabit connection at a very reasonable cost.

Enterprise Wireless Network Improvements

Wireless access is the primary method used by students and staff to access District and internet resources. It is critical to the teaching and learning process and the business needs of the organization. In Fall of 2014, we began the replacement of the enterprise wireless network. We are currently in Phase 3 of the replacement plan and will be complete 2 months ahead of schedule. By the end of April 2016, all schools and ancillary sites will have the District standard

wireless access on the new system. Once complete, we will analyze school libraries and other high-density areas to determine if additional wireless access points will be needed.

Wireless usage, both on the BSD Wifi network for BSD-owned devices and the BSD Guests network for student, staff and community personal devices, have experienced significant growth over the 2015/16 school year. From the start of the school year to present, the maximum number of devices on the wireless network each day has grown from 24,146 to 32,811. The average number of devices active during the day has almost doubled from the start of the 2015-16 school year. Use of the FutureReady student and staff devices are contributing to the increased wireless access demands.

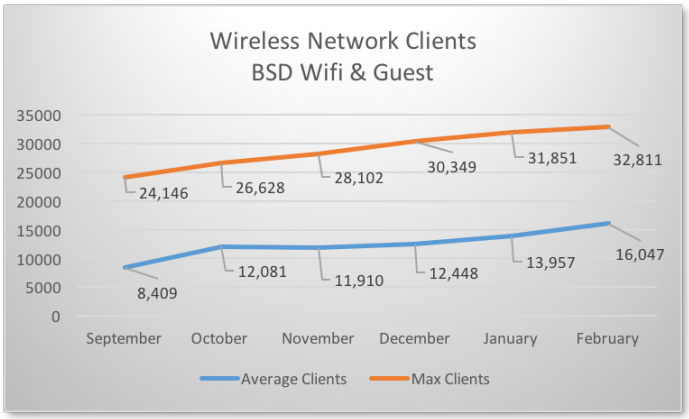

Figure 1: Maximum and Average Clients On The Wireless Network

Telecommunications System Replacement

We are completing Phase 3 of the Unified Communications system implementation and expect to have all schools and ancillary sites fully converted to the new ShoreTel system by May 2016. The 4th and final Phase of the project is to activate the safety and security features of the new system. We are testing the Enhanced 911 feature of the system at pilot schools in preparation for implementation at all schools over the summer. Enhanced 911, or E911, will automatically associate the location in the building of a number that dials 911. This will allow first responders and the Public Safety Office to know the exact location, not just the building where there is an emergency, saving critical time.

Other safety features of the system include the ability to initiate a lockdown/lockout from any telephone and the ability for the phone system to lock and unlock doors in the school.

Security Audit

The Information and Technology Department takes very seriously the responsibility to protect student, staff and organizational data and has implemented many identified best practices in the area of security. Our networks and systems are probed daily from external sources seeking access to our systems. To ensure we are operating with the highest levels of protection, we have hired a nationally known security firm to conduct a Next Generation Risk Management security audit of our systems. The audit will begin in April and will focus on the following areas:

- **Governance:** Access policies, Acceptable Use Agreements, Back-up, Audit and Accountability polices.
- **External Vulnerability Assessment:** Vulnerability from external probes and attacks.
- **Internal Vulnerability Assessment:** Vulnerability from internal probes and attacks.
- **Physical Security:** Analysis of both Central Office and Capital Center Data Centers.

We expect to learn both areas where we are well protecting our technology systems and areas where we can improve. Once we have the security audit report, we will analyze and prioritize areas where we can increase the security of staff, student, and organizational data.

Enterprise Applications

BaselineEdge Student Academic Dashboard

Figure 2: BaselineEdge Teacher Dashboard

Working in collaboration with Teaching and Learning, the IT department launched the BaselineEdge application for teachers in Fall 2015. BaselineEdge is a dashboard providing teachers with academic and behavior information for their students either individually or by groups. The application allows teachers to then assign and track academic interventions or extensions and record those that most helped the student.

SchoolMessenger Mass Notification System

The Information Technology Department, partnering with Community Involvement, released SchoolMessenger, a new mass notification system, at the start of the 2015/16 school year. Staff feedback has been positive about the interface ease-of-use and ability to send messages from computer or through the app for smartphones. The SchoolMessenger system was a critical communications application during inclement weather in January, sending out almost 330,000 weather related notifications to families and staff.

Month	Emergency	Attendance	School Announcements	BSD Briefs	Nutrition Services	Total Messages
September	411	36,929	249,870	122,503	14,746	424,459
October	1,180	59,836	331,234	113,569	25,596	531,415
November	5,805	55,499	221,867	116,267	27,830	427,268
December	0	54,011	171,993	58,226	17,271	301,501
January	328,730	63,275	364,701	118,556	23,933	899,195
February	3,564	86,131	269,088	128,595	29,844	517,222

Table 1: Total Messages Delivered by Month

Business Continuity / Disaster Recovery Planning

In Fall 2015, the Beaverton School District, working with a vendor partner, began the creation of Business Continuity (BCP) and Disaster Recovery (DR) plans. When complete, these plans will document essential business functions for schools and departments and outline processes to ensure continued operation during any type of emergency situation. The Disaster Recovery plan will articulate resources and time needed to bring critical systems online. At this time, we are working with the vendor to finalize school and department Business Continuity Plans and

Figure 3: Business Continuity Process

expect to complete this work by the end of the 2015/16 school year.

User Experience Improvements

There are a number of factors that together form a user experience for staff and students. This user experience contributes to staff and students reporting adequate access to technology. Below are changes made this past year to improve user experience for staff and students.

Access to Adequate Computing Devices

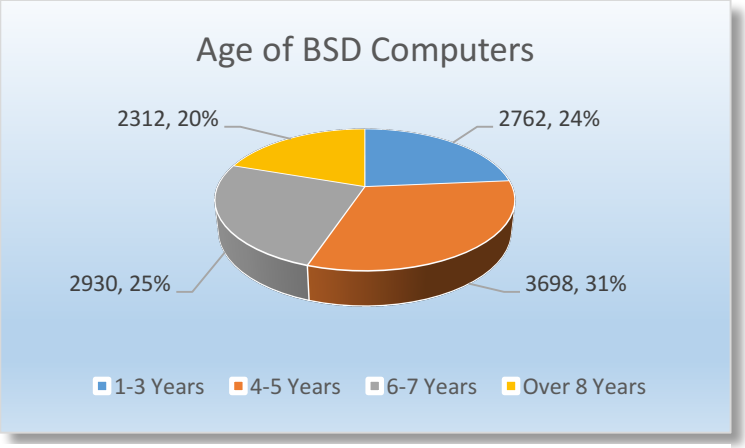

Figure 4: Age of BSD Computers

Over half of computers used in the District are less than 5 years old. The amount of computer memory, storage, and processing power of these machines are able to provide students and staff with a satisfactory user experience. The majority of the machines in the 4-5 year old category are the teacher-leased laptops, which will be replaced in the Summer of 2016. District-wide, while we do still have 2,312 computers that are over 8 years old, this number has dropped from the 3,263 reported to the Board last year.

The most significant computer growth is in the number of mobile computing devices (iPads and Chromebooks), purchased over the past year. These devices were largely the FutureReady devices purchased for the 15 FutureReady schools. The number of iPads District-wide has grown from 3,254 in April 2015 to 11,553 in April of 2016. The number of Chromebooks used in schools has increased from 2,107 to 14,444 over the past year.

Added together, the number of mobile computing devices now surpasses desktop and laptop computers used throughout the District. We are in the transition from the era of desktop and laptop computers to a reality of student and staff using mobile computing devices for much of their work and learning.

School Technology Support Improvements

In anticipation of the first year of our FutureReady implementation, 15 Computer Support Technicians (CST) positions were added during the 2014-15 budget process. A CST is a computer support staff member who is assigned and works at a school and provides Tier 1 support for staff. For many years, secondary schools have had a full-time CST while elementary schools and option schools did not have this building support position. The addition of 11 CST positions for the elementary schools meant that there was one CST assigned to 3 elementary schools. Additionally, 4 CST positions were added to support the options schools. Principal and staff feedback has been very positive about having a building technician who can immediately resolve technical issues.

"Beyond our FutureReady designation, this (CST) position is critical to our functioning and the functioning of all schools in the midst of a digital conversion."

~Brian Curl, Principal of Raleigh Park Elementary

Improvements in Resolving Technology Issues

In the Fall of 2015, the IT Department analyzed data from the Help Desk ticketing system to evaluate both the time taken to resolve technology issues for staff, and how the department as a whole communicated back to users about their technology issues. As a Department, we looked at changes we could make to improve both the speed of resolution and our communication with staff. As a result of focused work over this past school year, a recent analysis shows that we are closing Help Desk tickets 60% faster than our previous three-year average. Staff have also reduced the average time to communicate back with users by over 50%.

FutureReady Year 1

Working in partnership with Teaching and Learning, the IT Department deployed over 12,000 student devices between January 20 and February 29, 2016 in support of the first year FutureReady District Key Effort (https://www.beaverton.k12.or.us/about-us/school-board/Documents/Strat%20Plan%20Reports/Key_Efforts_Messages_Feb_2016.pdf). This successful distribution of student devices involved staff from schools and many central office volunteers, in addition to numerous community members and business partners. We are finalizing orders for approximately 17,000 student devices for Fall 2016 at this time to ensure student device readiness by the start of next school year.

Image 1: BSD Staff & Community Partners Deploying Devices at Sunset High School

Looking Forward

We are busy preparing for Fall 2016 at this time. When school begins next year, our infrastructure improvements will be complete. We will have the first year of FutureReady transformation at 15 schools across the District and will have devices for each student at all high schools. All middle schools will have at least 1 grade level of student devices and each elementary will have at least 2 grade levels of student devices. The infrastructure, enterprise applications, and technology support staff are aligned and able to continue our digital transformation of teaching and learning.