

Technology Office

UPDATE

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To the School Committee of the Weston Public Schools.

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UPDATES

Updates on projects and activities since our last report.



INNOVATIVE LEARNING TEAM & STUDENT PORTFOLIOS

Last summer our integration team launched a professional development program aimed at stepping up the impact of technology within instructional practices. Named the Innovative Learning Team (ILT), 13 faculty representing all schools met 4 times throughout the year creating example lessons of innovative learning practices mapped to the SAMR model and developed pilot Student Digital Portfolios.

Student Digital Portfolios have been created for every student grades 6 to 9 as a means for students to post examples of their work. This project, which has both an assessment and showcase component, was outlined by the English program review as an aspect for the English department to develop, but all subjects can utilize the tool. In the coming year we will be working with department and faculty in an effort to standardize Student Portfolios.

ILT faculty will also be presenting the development of this project at MassCUE in the fall of 2018.



PROCESSMAKER

We need to handle complex processes better. Employee entry, employee exit, field and room rental/reservations, student registration, and field trips are just a few examples of processes involving many people performing interrelated and dependent tasks. ProcessMaker is an online Software as a Service (SaaS) where we can design online forms to gather the needed information that is then sequentially, or in parallel, broken into the individual steps required for completion. Various staff are notified via email that a process requires action, data is shared according to what each role requires, and we'll have visibility into the progress at each step.

ProcessMaker was used for kindergarten registration this year and we are beginning to test a room and field reservation process. It will take several years to (re)design & build our manual paper-based processes into online workflows, but we have no doubt this will be very effective and efficient tool.



NETWORK UPDATES

We have been working on a number of projects related to infrastructure:

- In the fall of 2017 we completed the installation of network fiber to create new fiber loop from Boston Post Road, boring under Route 20, through the DPW and police station, and back to the main loop on Boston Post. This was done to ensure redundant communication paths to/from the new dispatch communication center in the police station.
- We have lit-up these new fiber runs to the police station and are in the process of re-mapping all other school and town buildings through the new reconfigured fiber loop to complete moving the server room functions out of the Town Hall and to the new Police Station server room.
- We have made a number of changes to the network switching and wireless systems to improve performance.
- We repurposed a backup battery system from the old police station to increase the run-time of the middle school phone and PA system when the power fails.



NETWORK SECURITY ASSESSMENT

During November 2017 we engaged in a security assessment (both School and Town IT systems), the goal of which was to learn about our weaknesses, patch them as found, and modify systems and processes to meet best practices in Information Technology. Our assessment was deemed very favorable and we took action on any shortcomings items cited.

Maintaining network and systems security is complex and challenging. The threats and tactics change and we have no choice but to adapt. During this year a number of major security vulnerabilities were announced--such as the “Meltdown and Spectre” vulnerabilities, cryptoware, new variations on ransomware, and evolving phishing attacks. Federal agencies have also notified us that hackers have increasingly begun to target municipalities and schools.



MULTI-FACTOR AUTHENTICATION

One of our plans for this year, even before the security audit, was to increase the security of critical systems by implementing multi-factor authentication. The first phase of this multi-phase implementation has been completed. Since we use systems hosted both internally and externally, implementing multi-factor authentication requires individually working with each vendor to enable multifactor options. Consequently, it will likely take another year to complete this important security measure.



PHYSICAL SAFETY & SECURITY

A number of safety and security enhancements are currently underway. These include adding more doors to access control, and increasing the number of cameras and duress notification systems. Details will not be provided in a public document.

We are also replacing the PA systems in 4 of our schools as they have been found to be insufficient to the task, unstable, and/or unable to meet our needs moving forward.

In addition, a district-wide safety team has been meeting all year to update and, if necessary, modify the security plans for each building, for which the technology office has focused on communications and procedures.



GOOGLE ANNOUNCES PAID VERSION FOR EDUCATION

Google has announced it will split the current education G-Suite offering into a free and paid version in 2019. As details are announced we will be evaluating the options and will plan accordingly. This does not come as a big surprise; considering the success and widespread usage of Google's education tools, it was just a matter of time.

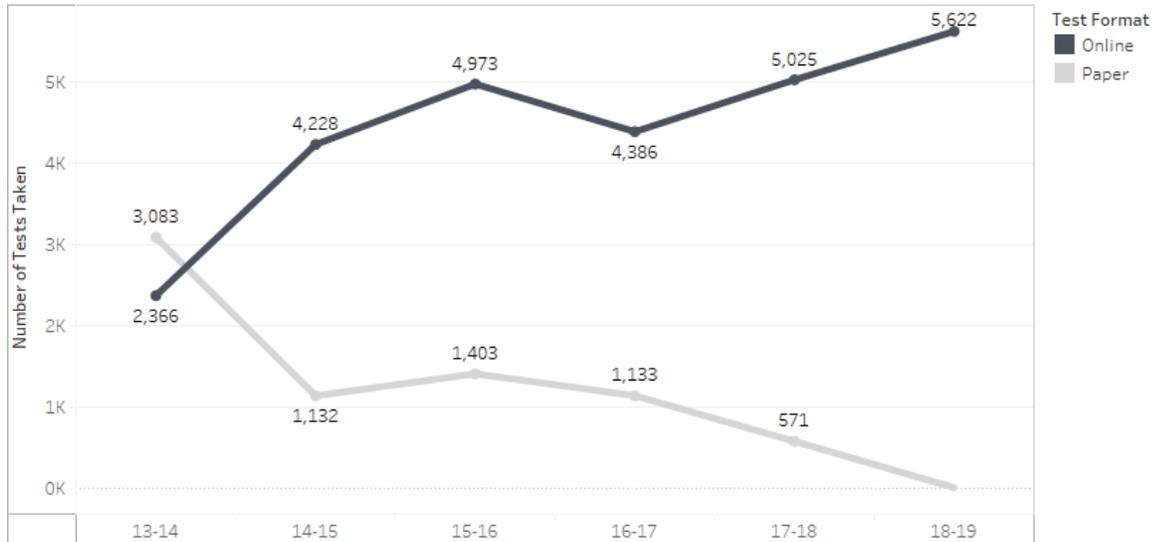


MCAS TESTING & TECHNICAL SUPPORT

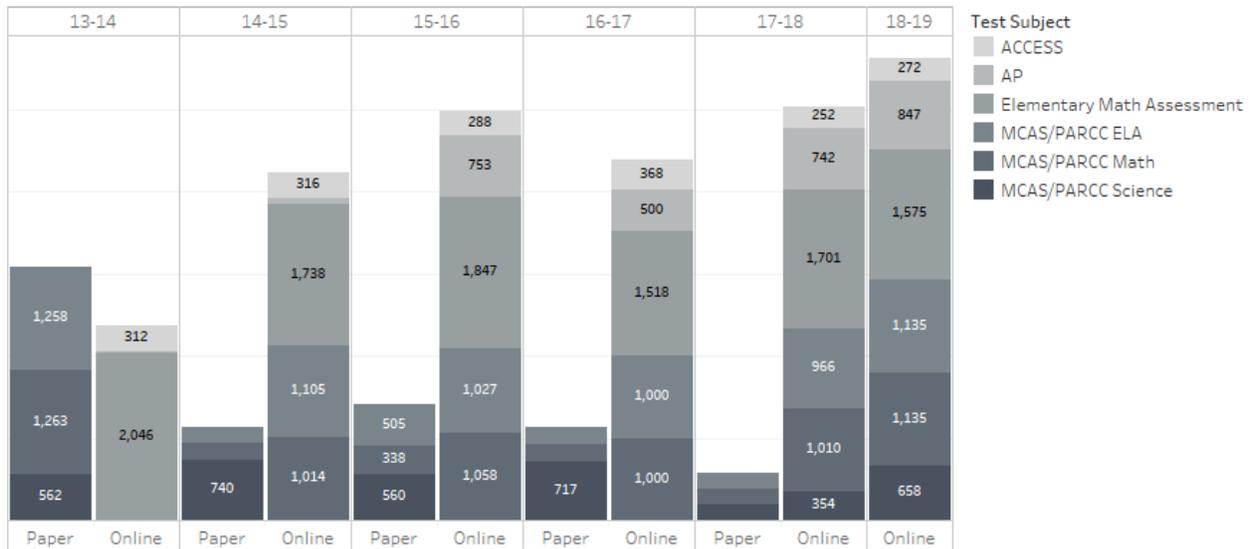
Online testing is taking more and more of our staff time. Below are graphs representing online testing-- the actual number of tests given from the 2013-2018 school years and projecting through the spring 2019. Keep in mind the actual number of test is higher than shown. The graphics below for PARCC & MCAS list Math and ELA tests as 1 each per student (we are counting final scores). Please note, however, that the math test is two sections over two days and ELA has been

two or three sections over as many days. **For the actual number of tests taken this year, double the number for each MCAS MATH and ELA below--add 1,977 tests.**

Number of MCAS/PARCC Test Administered, by Type (Online & Paper)



Number of MCAS/PARCC Test Administered, by Subtype



Number of MCAS/PARCC Test Administered, by Grade & Type



COST REDUCTION STRATEGIES

The following are actions that have been taken to reduce costs and/or strategies undertaken in anticipation of future cost reductions.



Over the next year and beyond, we'll be taking a closer look at the following aspects of our computing and educational environment:

- Longevity of devices. We'll explore if student devices need to go home, thus extending device lifespan by reducing wear and tear.
- Distribution of devices. We'll explore if one-to-one at grade 4 is fully utilized or if the pattern of use suggests that shared devices are feasible.
- Evaluate if moving a portion of our server infrastructure to the Cloud is cost-effective.
- Evaluate the consolidation of overlapping services.
- Evaluate leasing equipment rather than purchasing.



CLOUD ROI ASSESSMENT

Last year we hired a consultant to perform a cloud ready assessment to determine the scope of tasks and costs associated with moving portions of our backend infrastructure to cloud-based resources. Key points from the assessment were:

- Internet bandwidth requirements were not as extensive as anticipated.
- Hardware based VPN will be needed for persistent cloud connection. (Monthly cost, but not unreasonable).
- Comparing server hardware purchase to 5-year subscription fees for the Infrastructure as a Service (IaaS) model does not show significant savings. It does, however, provide a means to reduce current server load, offer new flexibilities and scalability as well as the potential for cost savings when the full picture of electricity, heat load on HVAC systems, and backup systems (storage) are considered.
- Risks with regard to disruption of critical operations does increase.
- Bottom line: Implementation of cloud-based resources for portions of our backend infrastructure is worth further assessment and experience.

Planned Action Steps: We are planning to move 3 to 5 non-critical systems to an Azure Cloud resource to learn and test a hybrid-cloud infrastructure. If all goes well, we anticipate being able to grow this hybrid cloud to run non-critical services.

PRIMER ABOUT CLOUD SERVICES:

Cloud based services come in three variations:

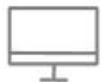
1. Infrastructure as a Service (IaaS) is renting processing power and storage space from a Cloud service (such as Microsoft Azure or Amazon Web Services). You still need to install, manage and license the OS, install and license virus protections, configure, pay for the number of CPUs, RAM allocated, and storage space used as well as pay for data backup systems and space. The only difference is you don't own the hardware and you must have a stable Internet connection.
2. Platform as a Service (PaaS) is where you subscribe to a full function platform like Google G-Suite or Microsoft Office 365. (Both of which we have).
3. Software as a Service (SaaS) is where you subscribe to a specific service such as a student information system, educator evaluation system, substitute service, IEP data system, budgeting system, etc.--all of which we also utilize.

Examples of Cloud based SaaS Systems Employed by the WPS: (Non-curricular):

- Infinite Campus: Student information System
- MyLearningPlan: Educator evaluation and Professional development
- Aesop: Attendance and Substitute system
- MyBudgetFile: Budget tracking & development system
- Ubicibus: Bus tracking system
- Destiny: Library card catalog and database system
- Naviance: College process
- ProcessMaker: Workflow system (new)

Examples of Curriculum focused SaaS Systems:

- Edgenuity, Lexia, Study Island



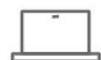
MOVED MOODLE IN-HOUSE

Our Moodle learning management system (what we named TeacherWeb) was hosted externally for the last couple of years, but the cost of hosting this externally has more than doubled in that time, so we brought it back in-house to reduce costs. We also gave notice to faculty last summer that we would be sunsetting TeacherWeb during the summer of 2018 in favor of Google Classroom.



SELF INSURED 7TH GRADE IPADS

Last summer we ran the numbers on iPad repairs for the previous year and decided to try self-insuring the iPad Airs in the 7th grade. At the school year's halfway point it appeared that this change would save approximately 2k, but during the last 4 months repairs have doubled in pace and we have now exceeded what insuring these devices would have cost.



EXTENDED LIFE OF FACULTY LAPTOPS

We invested in laptop upgrades over the last two years to extend the life of faculty laptops from 5 to 7 years. Laptops that were still in good physical shape were updated with solid state drives (SSDs) and more RAM, which substantially increased device performance.

Why? As a cost reduction strategy we are trying to get 7 years out of the faculty laptops. While not all of these laptops will survive to year 7, many will. Unfortunately, this particular approach will not be possible in the future as newer generation laptops already come with SSD drives and non-upgradable RAM. This was an opportunity we could take advantage of, unique to the equipment and sequence of tech advancements.