

San Diego Unified School District
i21Now Infrastructure Subcommittee
March 12, 2014
Instructional Media Center Building G

Present: Toren Allen	SDUSD ITSS Applications Director
Eric Bentel (remote)	
Bruce Braciszewski	Classrooms of the Future Foundation Exec. Director
Mickey Brown	SDUSD Ed Tech Resource Teacher
Tom Cookson (remote)	Promethean
Blaire Davey (remote)	AT&T
Jim Day	Cisco Systems
Gustavo Duarte	
Evan Leslie	SDUSD Project Manager
Jeremy Recktenwald	SDUSD ITSS Support Services Director
Tom Holland (remote).....	
Mike Senise	SDUSD Ed Tech/ITSS Resource Teacher
Matt Spathas	SENTRE Systems
Vance Tester	Qualcomm
Tom Tuscher (remote)	National University
Paul Villigan (Remote)	AT&T Government Accounts
Steve Zantos (remote)	Apple

Work of i21Now Subcommittees

Matt attended a facilities subcommittee meeting early today. They are saying that schools of tomorrow will look different than today. We are moving from schools to learning environments as we transform the delivery system. This group has been talking about the edge being the home and beyond for the next generation delivery model. The broadband folks say that broadband is now essential not optional. Higher level policy recommendations: if the broadband at home and beyond is now essential, if digital tools and policy people want a device in every student’s hand, it starts to put underpinnings in the conversation. Conversations have been thoughtful, powerful, and passionate. What will it look like both physically and virtually? All groups are asked to be bold and succinct in some actionable items. We need to state the “what” rather than the “how.” We want to make sure everyone is on the same page.

General Discussion

Evan is struggling in two areas. As an engineer, he sees the objective and tries to quantify the requirements, but he is not hearing from the curriculum side. In order to identify requirements, he needs to know where they are headed. The number of applications running concurrently will determine the gig requirement for the classrooms. Matt said curriculum folks are also trying to figure this out. Getting the internet to the home is critical. The foundational piece is broadband and the device.

Mike shared that curriculum nowadays has a multimedia component. We want to deliver the multimedia element and that requires a higher bandwidth. Curriculum is now being designed to include multimedia. To support this is a major thing. Even the math curriculum for the younger kids has a multimedia component. Students need to work on this at home. We are moving more and more in that direction. Curriculum is being presented in lots of different modes. We are making good progress moving toward the cloud. We have to be able to support whatever the cloud is going to deliver. Toren added that we are assessing whether things should be in their cloud or our cloud. Training for students and staff is now online. We trained 7,000 teachers in PowerSchool this past year.

Steve commented that sustainability requires training; is this covered under support? Professional development for teachers is a big factor in the success of this. This really falls in the curriculum area but it is an important support consideration. Change cannot be installed; it has to be adopted.

Jeremy said that we all want more detail; this is our chance to inform the Board. We are relying on lots of ways to guesstimate where bandwidth is going. Many things are trending. Some companies like Cosin, the Council of Great City Schools, have a metrics section. The Cisco document is right on: what we saw out of SDCOE and common core as far as where it is and where it is going and what is being recommended. Usually student bandwidth is not the same as LAN bandwidth; usually it is quite larger. As more things move to the cloud, things are faster and cheaper before connection costs come into play. It gets pretty large as they project to 2018. He can forward the document to the committee. Everybody in the industry knows it is growing exponentially by leaps and bounds. Matt asked if we focus on adequate bandwidth, do we want to partner with LAUSD or someone else? Jeremy said it depends on the bond: LAN needs of the school or applications being upgraded. Bond funds won't last forever; sustainability will be a problem. The finance group needs to deal with that piece. At this level we get to dream but it is up to finance to come up with economic solutions.

Jim commented that multimedia is coming down the pike. Bandwidth needs to grow to handle it. How easily can the adjustments be made, and how will this be prioritized? You may have business systems on the backside; you need systems intelligent enough to provide it. Build as much flexibility as you can into the technology.

Bruce said sensitivity to systems approach and requirements drive everything else. What is the new learning environment and what does it take to create that? Everything must support it. Matt asked if it is as simple as "always on" learning. We are talking about this agnostic infrastructure that can support all we need. We know the broadband, device, and support piece; now we need to determine what goes through this smart pipe. Can we take a reverse engineering approach? How will this be evolving and will it continue to change?

Evan commented that we can design for fifty years in the future, but the reality is you can't look too far ahead. There needs to be in between steps to measure infrastructure. For example, 40% of students may be doing individualized learning from home while 60% are getting instruction in the classroom, but we need to know how to link to the requirements. The requirements need to be quantified so they have some idea of how to get there. Matt said it is hard to respond to that question at this time because the dynamics are changing. The device issue is just being addressed, and no other district has taken connectivity to the homes. This will be the first of its kind in this country. Can we succinctly and with consensus start to frame something? It is incumbent on us that we say that we stop at the school; it doesn't fit support at the home. It will be hard to get that deep in this conversation. We are more the enablers but hopefully we can get through the touch points and glean some consensus around them and then frame some statements before the end of this meeting.

Jeremy referred to things that need to be addressed on paper. At a high level, we said make sure you do x, y, and z without saying how to do that: form the basis for the dumb pipe, wired and wireless infrastructure that is easy to maintain with a plan in place for the future. All campuses will have those networks. Broadband is driving more of where the edge is. For the dumb pipe, we could come up with a range of topics.

Vance noted that one thing that should be the guiding principle in education and IT organizations within which are becoming more of an enterprise. He suggested a partnership with the best in breed of what has already been done (Qualcomm would be a good one because they have already been there.) As an educational organization we are taking great leaps. In the area of infrastructure, we don't need to reinvent it, just take from the best what has already been done.

Paul commented that LA and Poway have not been as successful as SDUSD. We should look at where the other districts have gone, what worked and what didn't work. USD did devices and broadband, and probably Wi-Fi.

Presentation Discussion

Jeremy pointed out the presentation begins with a motto, "learning anytime, anyplace, any pace" followed by the Mission Statement (see slide show). Learning requires all students to have mobile access to 24/7 broadband connectivity anywhere, anytime. This is now essential. This will be followed by supporting recommendations to develop guidelines... 2) learning any and all resources... 3) develop digital literacy, community engagement and

parent outreach, 4) create internal processes that keep track of technological advancements in a timely fashion to allow for flexibility. Matt would like to add some specific actionable items and a leveraging strategy; talking about aggregation of demand and collaboration of service.

Toren guided the group through a handout.

1. Edge: The edge learning environment extends to the home and beyond. Maybe it means K-5 internet to the home with differentiated solutions depending on grade level, and Grades 6-12 get mobile broadband. This includes devices, cloud (private cloud too), apps, internet. We can shape these statements.

2. Support/Standards/Uniformity: Bundled support with standards and uniformity. One of the major discussion points includes real time support. Standards drive down support costs. Student devices are equipped with software, cloud, and hardware troubleshooting support during and after school hours. That is an important piece. Support has to be there, but what does it look like further down the road? Staff needs to support their own equipment as much as possible and it needs financial sustainability. Build flexibility in the system and use single sign-on. It is important not to have 20 different log-ins, and the same expectations should be there for students. Jim said we will need a flexible, efficient and cost effective support model. Matt asked if we have support metrics. Perhaps Vance can help. Are there industry standards around this? Jim said there are lots of devices. We need to figure out what we will support and what we may not support. It might be dependent on if it is an easy fix. If we try to support everything under the sun, it will cost a lot of money. Everything needs be "up." Toren asked if that is tiered support. Jim responded that they do "a-z" support on some things, and they make their best effort. Matt asked if San Diego launched the same device, what does that envelope look like? Jeremy responded that we will make sure whatever device we buy has a 3-year warranty so if there is any major defect, it will be taken care of by the vendor. He doesn't see us getting out of that without opposite end of the spectrum but that would require a lot more people. Jim noted that things that are not working must be fixed quickly. Matt said we could frame x people to support x devices and wrap that around a service contract. With 100,000 devices, we should know how many people it would take to support this. With a 1:1 launch, more than a word about adequate support is needed. Mike asked if we are talking network "up" time of just in general. We need to have a tech support person at every school. Matt said that whatever that number is, we need to have a support model so everything is working all the time. We should help frame what that looks like. Jim said you cannot put the device out there if the support is not set up. Some get grants for the equipment without planning the support piece. Bruce felt that Cosin could probably tell us how much support is needed. Matt suggested changing the heading to "Support and Standards" and leave out "Uniformity."

3. Automation & Digitization: Matt asked if we want to take this on. Mike said if we are going to put a system in place, it needs to be automated so systems talk to the other systems. The whole process is driven through the ecosystem working together, with the 3rd party integration type of service, and cloud integration to pull the pieces together. We are headed more toward the cloud; as they plug into single sign-in it is critical for ease of use. Matt asked if the heading should read automation and interoperability. They have maximized the business intelligence piece. Toren said as we expand the systems we have and move out to the cloud they are looking at a data bridge that helps plug in the different learning and assessment tools. They need certain pieces of data to operate. Mike noted that parents and community members are now a part of this. They are going on line and checking their own information. Parents are getting into LMS and SIS. It is not just staff and students. Because we are bringing this this to the community level and to the home, the parent has the option to use these tools.

4. Cloud (private, hybrid, public): Adoption is important and professional development will help with this. He would like to add a secure location. Partnering is good.

5. Security: It must be embedded in every policy and technology deployment decision. Flexibility is the key. Matt asked if this covers a protected firewall. Jeremy said no policy drives that security. Matt noted that some groups might have different slants on this.

6. Policy and Culture: Matt said that the policy decisions are pretty stringent at SDUSD. He hopes they can deal with what happens when a student brings their own device. This may fall under one of the other subcommittees. The district has a pretty conservative policy as it relates to opening up the pipe, but it is consistent with other school districts. Let's evaluate some of the policies in developing the infrastructure. For example, YouTube is blocked at high school, but do we want to get granular with this? We have the firewall. Jim thinks it needs to be at a higher level. Policy will drive what we do with security. Jeremy stated that whether or not the district blocks one thing this year or next year, the security is flexible enough to adopt the policy as long as it can be changed when the district decides to change it. Matt asked if it makes sense to combine security with policy. Mike believes part of the culture is bringing in the community if we are able to bring connectivity to the home. Can we adjust if some day we decide we want the parents to do certain things, whether it is accessing SIS or LMS or parents bringing their own laptops to a meeting at the school? What about allowing parents access at the school, or opening it up to the community?

Jeremy commented about the statement that the dumb pipe needs to be flexible, easily upgradable, wired and wireless, and should have an easily accessible connection. Matt said we want to accommodate those coming onto the campus and asked if another item should be added: adequate LAN on campus; having great plumbing to the schools and making sure it is flexible and adaptive through the schools. Jeremy said the facilities group would be formulating what the school facilities of the future will look like. Wi-Fi should be like universal services (like water, gas and electric). Internal wiring connections will need to get into this. Toren would like to add to Policy and Culture. Years ago Wi-Fi wasn't necessary, but now it has become necessary. Mike said culture is being built around neighborhood schools. They should have access whether they are on campus or sitting near the campus. We want to have policies in place, knowing this is where we are headed. Jeremy said this should be an overriding theme and should be placed either at the beginning or the end. Bruce added "toward the purpose of supporting the new learning environment for all students." Either make it number 7 or put it in the Mission Statement. Jim suggested, learning environment of today and tomorrow.

Toren will create and send a quick link to the committee so they can tackle this online between now and next Wednesday's meeting which is scheduled at e3.

Mickey asked how we know this is safe and secure. There may be parents who have a problem with this. Jeremy responded that it is filtered for content. Matt added that safe and secure is a major theme. Mickey asked if there is a place they can get online in the community, not just at home. Jeremy responded that this was discussed in the broadband committee.

Jeremy noted that while looking to drive down the costs, we need to be able to support the devices in the students' hands. The costs increase as you try to support multiple devices. Standardization drives down the support costs, and real time support is critical to success. Mickey felt that having one device, one browser, and one software may not be the best for teaching kids; perhaps this should be broader. Jim added that this is something the district will need to figure out.

Mike said that it is important to meet the needs of learning at various grade levels by having the devices that will meet instructional needs.

Additional suggestions:

- Take out cost effective
- We are not reinventing the trail but following the model.
- Foster an internal culture that keeps up with trend.
- Definitions – maybe it is the edge period. What is the take away. It extends beyond the school to the home and beyond. It longer stops at the classroom.
- Edge – platform for delivery no longer stops when the students walk out the door of the classroom; it follows the students to the home and wherever they choose to learn.

- Support/Standards – Cost of support is directly related to the number of devices supported. Use of device and software delivery standards should be utilized to drive down the cost of support without losing sight that the delivery needs to be differentiated based on individual instructional needs of the site and/or student.
- Automation/Interoperability – single sign-on, ease of access, dashboard, data, multiple resources, interactivity, ease of deployment of new applications – brings down the cost
 - Jeremy commented it is a revolving theme to drive the cost down using automation.
 - Jim added that with a district this size, you need to keep this in mind.
 - Mike said the ease of access should be here, single sign-on, connecting through the cloud for multiple servers
- Cloud – Leverage cloud-based services and solutions to maximize the use of the infrastructure to optimize learning environments.
 - Does this mean enable student emails? Does this fall into the edge?
 - Cloud is not only for district staff for support but also going out to the students.
 - Building infrastructure and support model that allows policy and instruction to dictate (ex. Google apps, Microsoft 265 or whatever the new thing is today.)
 - We want the infrastructure to be able to support this.
 - Instruction is going to change and the tools are going to change.
 - We need to be able to enforce our policies. Can cloud service authenticate against our directory servers?
 - SIS has been taken to the home; LMS, our assessment system.
 - Leverage the cloud where possible and acknowledge the cloud. The edge has moved into the family universe.
 - People have their own private cloud; private and external need to work together.
 - People don't care where it comes from or where it goes as long as it works, whether it comes from our data center or Amazon. For us there is a big difference. Does PowerSchool sit in the data center? Who cares as long as I can get there, as long as the interface is good, as long as it works.
 - Can we delineate between them? Part of the conversation is where the stuff sits, but it is more about what I can do with those services as a student.
 - Cloud is where it makes sense. If the support model is out there, if done internally, then that is where it goes.
 - Other committees are deciding which applications they want to use for education. There is a blurred line.
- Security – must be embedded in deployment and be flexible in nature. Physical and virtual security for student information and critical business operations and facilities.
 - We have tied this to automation.
 - Ease of access and security compete; we always have to inflict a little bit of pain to do what is right.
 - Network security is only a physical manifestation of what is on paper.
- District Policies and Culture
 - We need to have an infrastructure that supports the policy and culture of the district.
 - Look at the mission statement. Teaching and learning goals and safety and security.
 - Can we delete the last section?

Additional Comments:

- ◇ Finish the site infrastructure upgrades
- ◇ Address need to replace aged site based telephony systems and integrate that with a site based public address capability to support site/student safety.
- ◇ Prepare and execute a plan to support increased demands for wireless bandwidth at the sites and that impact on the wired infrastructure
- ◇ Extend delivery of digital instruction past the campus perimeter
- ◇ Develop and enact a business plan to rent or lease space to other public entities in data center 2 as a model to partially or fully sustain our technology operation budget
- ◇ Align district support with enterprise models; translation - the stuff has to work all the time

Questions:

- Do we want to come up with some recommendations?
- Can we shoot them out to the group?
- Do we want to stop with our work right here or do we want to go one layer further?
- Broadband had some recommendations; some were generic and some specific. Getting it to the home is a little more tangible. Do we have any tangible takeaways?
- Actionable items are “create” and “develop.” We could come up with statements for bulleted points.
- Ensure single sign-on.
- Make actionable items out of each that summarize and synthesize the whole document.

Jeremy said the 1st item is actionable. He knows how to enact that change. There are still 100 schools that don't have coverage out to the gate. We are at 5,000 classrooms but there are about 7,000 classrooms. Infrastructure need to go to those schools and the remaining schools. We need to accelerate and complete the Prop S upgrades. We need to finish the infrastructure upgrades past the campus perimeter and then extend it to the home: from device, teacher, learning environment standpoint.

Adjournment

Toren Allen adjourned the meeting at 6:10 p.m.