Customer Information Guide for Transition Phase

FOR

- **State Agency Video and Data Services Customers**
- **State Authorized User Video and Data Services Customers**
- **TEACH Video and Data Services Customers**

Version 4.2

Contents

Introduction

Goal

Through our public and private partnerships, the State of Wisconsin contributes to the Governor's priorities by achieving greater service and speed with reliable internet access. This will reduce costs in attaining our economic development goals and increase security for the future.

Strategy

The Broadband Technology Program directly supports Governor Walker's Priorities of growing our economy, developing our workforce, transforming education and reforming government. The strategy for this program will address Wisconsin priorities and provide broadband communications sufficient in meeting the increasing demands of government, education, health care, and public and private partnerships. Included are the BadgerNet Foundational, NG-E911, FirstNet, and leveraging Connect America Fund Phase II (CAFII).

BadgerNet is the foundational project in the Broadband Technology Program and is an affordable, scalable, futureproof, accessible, and a secured network. High speed broadband services will be delivered to any location in Wisconsin over a network designed to maximize public and private service delivery with significant cost savings for the state. BadgerNet will support Wisconsin's high speed broadband needs.

Phases and Timeline

- **Transition –** The process of moving work functions from the current support structure to a new support structure. Transition planning will begin with high-level planning and identification of resource requirements during the RFP Bid Response period. Transition implementation begins at contract signature and is complete when the last work function (people, process, tools) migrates from current to new support structure.
    - o 6 month duration – August 1, 2016 – February 1, 2017

- **Transformation –** The process of evolving current network technologies to a design standard that improves performance, efficiency, and/or cost. Transformation begins after contract signature and may overlap Transition implementation.
    - o 11 month duration – February 1, 2017 – December 31, 2017

- **Service Delivery/Day 2 Operations** – Also referred to as Service Commencement Date, this is the effective date in which AT&T assumes management and operational control of the client environment. This includes AT&T infrastructure tools, technologies, network services, workflows and processes, vendor agreements, service levels, and management structures.
    - o Begins February 1, 2017

BadgerNet Timeline
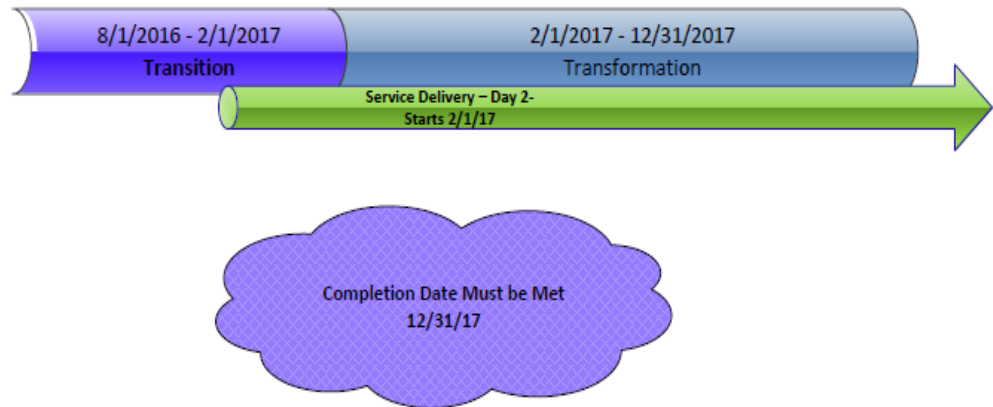
What Customers Need to Do

1. All customers must review, validate, verify and update the Customer Site Spreadsheet by October 14th, 2016. Be sure to include an on-site name along with their contact information on who will work with AT&T to install service at your location(s) throughout transformation.
2. Commit to a service and bandwidth increment at each site by October 14th, 2016.
3. State Agencies and Authorized Users are encouraged to sign up and attend one of the Town Hall Sessions.
4. State Agencies and Authorized Users must submit validated Customer Site Spreadsheet with service and bandwidth increment to DOADETBadgerNet@wisconsin.gov by October 14th, 2016.
5. State Agencies and Authorized Users submit questions to DOADETBadgerNet@wisconsin.gov.
6. TEACH (schools, libraries, etc.) and TEACH Video users must submit validated Customer Site Spreadsheet with service and bandwidth increment, and an acknowledgment that they have read and understood the TEACH Policy document to TEACH@wisconsin.gov by October 14th, 2016.
7. TEACH (schools, libraries, etc.) customers should send TEACH questions to TEACH@wisconsin.gov.
8. Understand that the returning of the Customer Site Spreadsheet with service and bandwidth constitutes a commitment to the order for fulfillment by AT&T February 1st, 2017 through December 31st, 2017.

What Customers Need to Know

- Bandwidth Offerings
    - 6 Mbps
    - 10 Mbps
    - 20 Mbps
    - 50 Mbps
    - 100 Mbps
    - 1 Gbps
- Effective November 1st, 2016 State Agencies and Authorized Users will see a 7% discount applied to current BCN rate at 1.5 Mbps and above.
- BadgerNet contract rates will be effective when new service is delivered to a site.
- BadgerNet contract rates are set by PSC regions: http://www.link.wisconsin.gov/regional-teams
- If required, one-time fiber construction cost is a maximum of $80,000 per mile. The site will receive a quote and is responsible to review, approve, and pay all one-time costs. Not to Exceed One-Time Construction Cost for Fiber Installation at $80,000.00 per mile consists of: entrance facilities to the minimum point of penetration, non-reusable fiber construction, and non-reusable equipment necessary to provide the bandwidth requested at any individual site.
- TEACH customers, see updated TEACH policies regarding rates and construction costs http://teach.wi.gov

BadgerNet Service Options

- Wide Area Network (WAN) with Quality of Service (QoS) (Category A)
    - Available at any location in the State of Wisconsin
    - Symmetrical service (send and receive data at equal bandwidth rates)
    - WAN service with Service Level Agreement (SLA) requirements

- WAN without QoS (Category B)
    - Available at any location in the State of Wisconsin
    - Symmetrical service (send and receive data at equal bandwidth rates)
    - Best effort WAN service with nominal Service Level Agreement (SLA) requirements

- Broadband Internet (Category C)
    - Based on ISP provider network footprint, service may not be available at every location in the State of Wisconsin. Best effort ISP service without QoS or SLAs.

    There are three options:
        - MIS over BadgerNet (send and receive data at equal bandwidth rates). This is a special service currently only available to schools, school districts, libraries, and library systems. This service is only available at a site with Category B WAN without QoS (transport) installed.

- Asymmetrical service (send and receive data at unequal bandwidth rates with more bandwidth available for download/receive than upload/send). The transport provider and the ISP portal provider are the same vendor. This is a managed service that allows customers to make one call to determine availability and the best option at a site. This managed service will also care for the order, implementation process as well as service management.
- Symmetrical service (send and receive data at equal bandwidth rates). This service includes both the transport from the site to ISP Portal and the ISP Portal (transit). Both transport and transit are from the same vendor

Note:

MIS	Managed Internet Service	MIS on BadgerNet: A Symmetrical service without QOS or SLAs. This is a special service, currently only available to schools, school districts, libraries and library systems. For schools and school districts, the ISP Portal Access pricing is based on the student enrollment of the School District. For libraries and library systems, the ISP Portal Access pricing is based on the student enrollment in the public school district in which the main branch of the library is located. Transport must be Category B with standard pricing. The service is Symmetrical in that the Upload and Download speeds are the same. The Portal doesn't have a bandwidth associated with it. The Portal bandwidth matches the schools requirements and is only capped by the Transport Speed.

- o
- Ethernet Services (Category D)
    - o Ethernet is only available if the site is serviceable by AT&T in Regions 3, 4, 5, 8 and 9
    - o Symmetrical service (send and receive data at equal bandwidth rates)
    - o Ethernet Service with Service Level Agreement (SLA) requirements
    - o Private WAN service plus QoS with no connection to BadgerNet
- Video Service: AT&T Video Meetings with BlueJeans
    - o Cloud-based, multi-point videoconferencing solution accessible over BadgerNet and the Internet
    - o Named host solution that includes up to 100 participants within one meeting room, available 24x7 with unlimited recording

Comparison

	BCN	BadgerNet
SERVICE OFFERING	WAN	WAN
	HPLL	WAN with QoS

	Internet Transport	Broadband Internet
		    MIS over BadgerNet
		    Asymmetrical
		    Symmetrical

	WAN or HPLL	Ethernet Only available if site is serviceable by AT&T in Region 3, 4, 5, 8 and 9
	Managed HD Video	Service will expire on October 31, 2018 Video Meeting with BlueJeans
	Managed SD Video	Service will expire on December 31, 2017 Video Meeting with BlueJeans
	HPLL Video Bridging	Service will expire on December 31, 2017 Video Meeting with BlueJeans
	Flat rate – fixed prices anywhere	Flat rate – fixed prices in each PSC region http://www.link.wisconsin.gov/regional-teams
TECHNICAL	Private network	Public (commercially available) network
SUPPORT	DET specified Sunday maintenance window	Standard vendor maintenance windows
SERVICE LEVEL AGREEMENTS (SLAs)	Custom SLAs and credits	Standard vendor SLAs and credits
MANAGED VIDEO SERVICE	Private managed video infrastructure and service	Public (commercially available) offering: Video Meeting with BlueJeans
FIBER CONSTRUCTION COSTS	AT&T invoice: Includes up to $35,000 for one-time fiber construction costs	AT&T invoice: One-time fiber construction cost is a maximum of $80,000 per mile. The site will receive a quote and is responsible to review, approve and pay all one-time costs
INVOICE	AT&T invoice: one per customer group and includes detail per site for all installed services at contract rate plus DET markup	AT&T invoice: one per customer group for the contract rate per site for all services. DET invoice: AT&T MSP fee and DET Managed WAN Service (state agency only)
TERMINATION LIABILITY	A twelve (12) month minimum commitment is required	A twelve (12) month minimum commitment is required for any circuit or a termination penalty will apply which will be calculated at 50% of the price over the remaining Term

TEACH CUSTOMER	≤ 20 Mbps = $100 per month ≥30 Mbps = $250 per month Video = $250 per month	≤ 1 Gbps = $100 per month 1 Gbps = $250 per month Video = $250 per month

Considerations

Customers are urged to consider not only their existing needs for bandwidth size, but also their future needs. The new contract comes with a minimum requirement of 6 Mbps of bandwidth and a maximum capacity requirement of 1 Gbps. Things to consider while determining your bandwidth needs include:

√	Have you Considered…
	Moving on-site application and file servers to DET data center(s)?
	Voice over Internet Protocol (VoIP) traffic that will place an additional load on network resources? Visit the Skype for Business Minimum Bandwidth Requirements at https://support.skype.com/en/faq/FA1417/how-much-bandwidth-does-skype-need to help determine what your needs may be.
	Office 365 traffic that may place an additional load on network resources?
	Virtual Desktop and Remote Application traffic that may place an additional load on network resources?
	Your business requirements, initiatives, and application changes that may place an additional load on network resources?
	Video applications such as videoconferencing and surveillance applications that require bandwidth?
	The varying number of users on the network?
	Continuous growth of data files from year to year?
	User's expectation of high network performance?
	The increased network load at the beginning and end of each workday?

Bandwidth Calculation Best Practices

So, given all of these dynamics, what constitutes a best practice when estimating current and future bandwidth needs?   Here are some suggestions:

1. Use one of the many tools available to assess the current utilization of both your LAN and WAN network segments over a period of time. DET has this information for state agencies that subscribe to BadgerNet WAN and LAN service offerings.

2. Define what applications are in use today, and by which user groups. Having done so, assess how much bandwidth each application requires, and for what periods.

3. Gain a complete understanding of the number of network nodes that contribute to the total. These nodes may include, but are not limited to, workstations, shared printers, servers, VoIP phones, and cameras.

4. Summing the average bandwidth per node/node type and multiplying that amount by the total number of nodes will yield a passable estimate of the required bandwidth, +/- 25% or

so. Keep in mind that this figure cannot take into account any heavy bursts of traffic resulting from multiple VoIP calls in use, MIME attachments, congestion re-transmits, and so on.

5. Determine your nominal oversubscription rate and consider peak requirements. There will actually be periods when network traffic is much lower. In data-only networks, a 4:1 or 3:1 oversubscription can yield cost benefits without affecting the perceived performance of end users. For networks with higher file-sharing or streaming media, 2:1 is a more realistic figure.

6. Assess what applications will be used on the network within a period of 18-24 months and what burden each will place on the bandwidth requirement. Ensure that the connection offered by your ISP contains ample provision for growth.

7. Factor in any improving effects from planned or existing systems such as data compression, caching, and so on.

Video Services

Although the purchase of video service is optional, those who choose to include it with their package will be provided Video Meeting with BlueJeans. Expiration dates include:

- Current BCN Managed High Definition (HD) will expire on October 31, 2018.
- Current BCN Standard Definition (SD) video will expire on December 31, 2017, or when current contract ends or when site is transformed to new network.
- Other BCN Video Services such as High Priority Low Latency (HPLL), HPLL-Video Bridging, Remote Video Access (RVA), and Video Meeting Room (VMR) will expire on December 31, 2017, or when current contract ends or when site is transformed to new network.

Construction Requirements/Access Rights

Contractor, BadgerNet Customer, and the Building/Property Owner, if different from BadgerNet Customer, share responsibilities in the following manner:

1. Construction to the property line: Contractor is responsible for all inherent costs to provide service to the BadgerNet Customer property line.
2. From the BadgerNet Customer property line to the side of the building: The building owner jointly with the BadgerNet customer is responsible for all inherent costs to provide conduit and/or interduct from the property line to the building. Contractor shall be responsible for all material and labor to provide and pull cabling required to provide the service through that conduit and/or interduct.
3. Building penetration: The Building Owner jointly with the BadgerNet Customer, is responsible for all inherent costs to penetrate the building and provide a sleeve to connect the outside conduit and/or interduct to the inside conduit and/or interduct. Contractor shall be responsible for all material and labor to provide and pull cabling required to provide the service through that sleeve.
4. Minimum Point of Penetration (MPOP): The Building Owner jointly with the BadgerNet Customer, is responsible for all inherent costs required to provide conduit and/or interduct from the inside sleeve to the Contractor's MPOP in the building. Contractor shall be responsible for

all material and labor to provide and pull cabling required to provide the service through that conduit and/or interduct to the MPOP (where the service to be installed/delivered).

Activation

The following steps typically take place to activate the service:

- Once the logistics of circuit installation and equipment deployment have been completed to the site, the installation is scheduled, according to the mutually agreed upon schedule between AT&T and the State.
- An on-site technician will install the new equipment and connect to the new circuit. AT&T will verify the configurations, and the test and turn-up center will begin testing connectivity through the network. All work to this point has been performed in a non-intrusive manner.
- AT&T will notify the State contact that it is time to bring the device onto the network to do acceptance testing.
- At this point, the technician will disconnect equipment from the old network device and connect to the new equipment. Test and Turn-up will verify equipment is connected and functional.
- Once completed, State personnel will begin running the previously developed testing protocol. These testing protocols will be developed jointly between AT&T and the state and would typically involve logging on to all required applications to help ensure full connectivity is established.
- Once testing is complete and accepted, the new device is active on the network being managed by AT&T. Decommissioning of the legacy device can now begin.

Supporting Documentation

Appendix 1: Customer Transition Checklist

Appendix 2: Category C Broadband Internet Service

Appendix 3: Optional Video Service

Customer Site Spreadsheet

Will be provided to each customer as electronic file

Contact Information

TEACH
http://teach.wisconsin.gov/

VendorNet
https://vendornet.wi.gov/

Appendix 1: Customer Transition Checklist

Status	Activity	Due Date
√		
	All customers must review, validate, verify and update the Customer Site Spreadsheet. Be sure to include an on-site name along with their contact information on who will work with AT&T to install service at your location(s) throughout transformation.	10/14/2016
	Commit to a service and bandwidth increment at each site	10/14/2016
	State Agencies and Authorized Users are encouraged to sign up and attend one of the Town Hall Sessions	09/20/2016
	State Agencies and Authorized Users must submit validated Customer Site Spreadsheet with service and bandwidth increment to DOADETBadgerNet@wisconsin.gov	10/14/2016
	State Agencies and Authorized Users submit questions to DOADETBadgerNet@wisconsin.gov	N/A
	TEACH (schools, libraries, etc.) and TEACH Video users must submit validated Customer Site Spreadsheet with service and bandwidth increment, and an acknowledgment that they have read and understood the TEACH Policy document to TEACH@wisconsin.gov	10/14/2016
	TEACH (schools, libraries, etc.) customers should send TEACH questions to TEACH@wisconsin.gov	N/A
	Understand that the returning of the Customer Site Spreadsheet with service and bandwidth constitutes a commitment to the order for fulfillment by AT&T February 1st, 2017 through December 31st, 2017	10/14/2016

Appendix 2: Category C Broadband Internet Service

AT&T offers Broadband and Internet Service Provider (ISP) Service in this category and is limited to where commercially available. It is not customizable and not all bandwidths may be available at all locations.

Service Options: Either symmetrical or asymmetrical service which consist of the following three (3) options:

Option 1: MIS over BadgerNet: A Symmetrical service without QoS or SLAs. This is a special service, currently only available to schools, school districts, libraries and library systems. For schools and school districts, the ISP Portal Access pricing is based on the student enrollment of the School District. For libraries and library systems, the ISP Portal Access pricing is based on the student enrollment in the public school district in which the main branch of the library is located. Transport must be Category B with standard pricing. The service is Symmetrical in that the Upload and Download speeds are the same. The ISP Portal doesn't have a bandwidth associated with it. The ISP Portal bandwidth matches the schools requirements and is only capped by the Transport Speed.

> **Service Ordering:** Follow standard order process.

> **Service Delivery:** MIS over BadgerNet is a "Best Effort Service" which means traffic is discard eligible when the network congests. MIS over BadgerNet is a hybrid service that combines Category B transport with an AT&T MIS portal. The transport delivers the traffic from the site to either the Madison or Milwaukee Core. The traffic is handed off at the core to the AT&T MIS Portal. This service is only available at a site with Category B WAN without QoS (transport) installed and only with AT&T MIS Portal (ISP transit).

> **Problem Management:** Customers will contact their respective Help Desk.

Option 2: Asymmetrical: Also called "Broadband," "IP Broadband," "DSL" or "Cable Modem." This service is without QoS or SLAs. The transport provider and the portal provider are the same vendor. Download bandwidth (from the ISP portal to the site) is faster than Upload Bandwidth (from site to ISP portal). This is a managed service that allows customers to make one call to determine availability and the best option at a site. This managed service will also care for the order, implementation process as well as service management. Optionally, this managed service can also look for wireless and satellite options as necessary.

> **Service Ordering:** Follow standard order process, but the order will be routed to AT&T subcontractor Diversified Systems Resources (DSR) for service management. DSR will find the best service provider, place the order and manage the order through completion.

> **Service Delivery:** "Best Effort" services (lowest class of service), which means traffic is discard eligible when the network congests. Traffic is handed off to an ISP as soon as possible and the local service provider is also the ISP. An option to use another ISP provider is not offered.

BadgerNet does not have visibility to these end-points. Customers of this service are required to call in when service is down. Service will be delivered using a DSL or Cable modem. In order to keep the service as affordable as possible, there are no network test points, so it is not monitored for service quality.

Problem Management: Help Desk support will be provided by AT&T via subcontractor DSR. Customers will contact their respective Help Desk first. The customer Help Desk will collect basic information and create a ticket in the BadgerNet Portal and route the call to the DSR Help Desk. All support services will be telephone-based (no on-site service will be provided as part of the service). Through this arrangement, AT&T, through its subcontractor DSR, will assist Customers with resolving issues that interfere with establishing a successful communication session with the Internet.
The DSR Help Desk will provide support to Customers for the following:
- Workstation configuration
- VPN client configuration and problems
- Broadband hardware problem identification and resolution
- Broadband service provider problem identification and resolution
- Internet service provider problem identification and resolution
- Questions regarding utilization of the communications link

Option 3: Symmetrical: This service includes both the transport from the site to ISP Portal and the ISP Portal (transit). Both transport and transit are from the same vendor. The bandwidth for each service is the same and the bandwidth to and from the portal is the same.

Service Ordering: Follow standard order process.

Service Delivery: "Best Effort" services (lowest class of service), which means traffic is discard eligible when the network congests. Traffic is handed off to an ISP as soon as possible and the local service provider is also the ISP. An option to use another ISP provider is not offered. The BadgerNet does not have visibility to these end-points. Customers of this service are required to call in when service is down. Most BadgerNet service providers will connect Symmetrical service to their ISP through the Metro Ethernet cloud and will be delivered using a local service provider Network Termination Equipment (NTE) device. In order to keep the service as affordable as possible, there are no network test points, so it is not monitored for service quality.

Problem Management: Customers will contact their respective Tier 1 Help Desk.

Appendix 3: Optional Video Service

Option 1: AT&T Video Meetings with BlueJeans on BadgerNet
Service availability: Begins February 1, 2017

- In the existing BCN Managed Video environment, the video bridging sessions are a scheduled or reserved resource through the Scheduling Office. In the new environment, AT&T Video Meetings with BlueJeans on BadgerNet provides a named Host solution that includes up to one-hundred (100) participants within the one meeting room, which will be available 24/7 with unlimited recording. It is a meet-me service where participants dial in or click on a URL from their device so scheduling is not required. Video Meetings with BlueJeans on BadgerNet is a cloud-based, multi-point videoconferencing solution that offers a cost-effective, scalable, mobile approach to meeting and collaboration. AT&T Video Meetings with BlueJeans on BadgerNet is also accessible over the Internet from devices equipped with a camera, providing value because you can access the service without the need to purchase or maintain video hardware. The Host manages their own recordings and meeting room environments.

Features and Benefits

AT&T Video Meetings with BlueJeans on BadgerNet gives you these features:

- **Affordable and flexible pricing plan**—BlueJeans provides a named host solution that includes up to one-hundred (100) participants within the one meeting room, which will be available 24/7 with unlimited recording.

- **Command center**—a web-based, real-time dashboard is provided with this solution.

- **Cloud-based service**—helps you minimize video conferencing equipment maintenance contracts, capital expenditures, and IT resource burdens. You can use existing equipment that has Internet access and a camera (e.g., desktops, laptops, tablets, smartphones, or a room-based system). AT&T Video Meetings with BlueJeans on BadgerNet is flexible and convenient.

- **Interoperability**—means that AT&T Video Meetings with BlueJeans on BadgerNet works with Microsoft® Lync®, iOS®, Android™, most web browsers, Cisco Jabber®, and standards-based room and immersive video systems. By enabling unique integration between Microsoft® Lync® and most other video technologies, AT&T Video Meetings with BlueJeans on BadgerNet can extend the reach of Microsoft® Lync® users to include most room-based video equipment, laptops, and mobile devices. So, you can use your existing video hardware and software.

- **Multi-party meetings capability**—supports up to one-hundred (100) endpoints. So, you can use the service for global team meetings, online training, sales calls, HR interviews, and more.

- **Rich, high definition (HD) content support**—lets you share your latest marketing slides or budget-tracking sheet in HD, up to 1080p. Dual-stream support helps maintain the quality of both the video feed and shared content. Your meeting participants will enjoy a high quality experience.

- **Video sharing**—provides synchronized streaming so that all participants can see video content simultaneously from any supported platform, even room-based systems. You can

show a product demo to a customer or review the latest version of a trailer with a global team during AT&T Video Meetings with BlueJeans on BadgerNet events.

- **Meeting recording**—lets you record, watch, and share your AT&T Video Meetings with BlueJeans on BadgerNet events, including the video, audio, and shared content. This allows you to document important meetings and share them with those who were unable to attend; record training sessions for colleagues, customers, and partners; and access recordings from almost anywhere via the cloud. We have provided unlimited recording as part of this solution.

- **Security features**—include firewall and Network Address Translation (NAT) traversal and encryption. This means that even in a multi-vendor environment, you can expect your meetings to be private. This solution also provides for AES encryption.

- **Ease of use -** In addition to being flexible and compatible, AT&T Video Meetings with BlueJeans on BadgerNet is easy to use. Because it's a cloud-based service, you avoid having to buy, install, or manage any conferencing hardware and software. In addition, you can quickly increase service capacity by simply adding licenses or virtual ports. This will also allow users to continue to use their existing video end points as well as new.

   Hosts can schedule a meeting via the scheduling portal or Microsoft® Outlook® or Google Calendar add-in, and participants can join via tablet, smartphone, or laptop (with the simple click of a link) or a phone call. They can also use systems such as Cisco® Jabber™ or Microsoft® Lync®.

High-level requirements

A BadgerNet connection is required (Category A-D) to gain access to AT&T Video Meetings with BlueJeans on BadgerNet. Once you are a customer of BadgerNet, you simply combine a service account with a video-enabled device. First, sign in to your AT&T Video Meetings with BlueJeans account online and enter your meeting. Whether you're initiating a scheduled or ad hoc meeting, you can start it via your browser or mobile device. Before entering, you choose the device (computer, room system, or mobile device) and video platform (browser, Microsoft® Lync®, mobile app, etc.) you want to use. Inviting participants is easy: Use your contacts and invite people inside or outside of your organization. All participants receive an audio number and URL (or dial-in string for other H.323 and SIP end points) that launches the meeting within their browser or mobile device. Once in your meeting, you automatically send and receive video. You use the same interface to control your meeting experience (e.g., record the meeting, share content, send group chats, change viewing layout, zoom, etc.).

Option 2: BCN Managed HD Video Service
Service availability: Today thru October 31, 2018

AT&T will extend the existing BCN Managed High Definition Video Service thru October 31, 2018 or when the site migrates. The existing infrastructure will remain in place allowing existing high definition (HD) classrooms to schedule video sessions, access the BCN bridges, and place a call for help-desk support. The HD video codecs remain the property of the local service provider

and can continue to access and use the Crestron classroom controllers. The legacy infrastructure, specifically the management system, bridges, and firewalls remain in place.

This service is provided only to existing BCN High Definition Managed Video users. Standard definition users have the option to upgrade to BCN High Definition service or to migrate to another BadgerNet service before December 31, 2017. Other BCN Video services, such as Remote Video Access (RVA), Virtual Meeting Room (VMR), HPLL and HPLL with Video Bridging Service will be available through December 31, 2017 or when the site migrates to another BadgerNet service.

BCN Managed HD Video Service Components

- Multipoint Control Units (MCU)—a multipoint control unit allows two or more video end-points to bridge together on a call. BCN's Video Network includes four (4) Multipoint Control Units with a significant amount of capacity to accommodate standard and high-definition end-points in a single call. The MCUs are physically and logically diverse for redundancy and have additional expansion capacity.

- Converged Management Application (CMA)—CMA is a management tool used by AT&T to provision, troubleshoot and control call flow with the BCN video network. All video devices, standard-definition codecs, high-definition codecs, MCUs, gateways, etc. are registered to CMA. Devices in the network can be tracked and call flow can be defined as a standard procedure with CMA. As a tool, CMA is not available for use to consortiums or individual sites.

- Video Border Proxies (VBP)—Video Border Proxies (VBPs) are a specific type of firewall and allow certain types of calls to enter or exit BCN. There are two types of VBPs in the BCN Video network; one specifically for BCN Remote Video Access video end-points to use, and another VBP for all other types of users and calls. Introduction of the VBPs now allows certain types of calls to leave the network without using the MCU as a gateway.

- Scheduling – Having resources for scheduling these managed HD video sessions is very important to ensure successful scheduled video sessions. Scheduling can be done as it is today through DOA's arrangement with Wisconsin Indianhead Technical College or AT&T will work with AVI to offer this service.

High level requirements

BCN Managed HD Video service provides a managed codec as part of the service. Classroom control system, monitors, and other necessary integrated room equipment may be required. Category A-WAN with QoS, BadgerNet network connectivity is also a requirement.

Implementation Approach

AT&T will maintain the existing Managed High Definition Video Service thru October 31, 2018. All existing HD Managed Video users will be able to retain their service. Existing Remote Video Access, Virtual Meeting Rooms, or Video Bridging users will have the option to migrate to an alternate video service known as AT&T Video Meetings with BlueJeans on BadgerNet.

Version Control:

Version Number	Date	Version Notes
4.2	10/4/16	Corrected page 5 – BadgerNet Service Options – bullets #3 switched for Cat A & Cat B.
4.2	10/5/16	Page 6- Added Note: w/ Definition for MIS – Managed Internet Services