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Public Works for a Better Government

To: Reynold Schweickhardt
Director of Technology Policy
Committee on House Administration

Cc: Pat Hirsch, House Broadcast Studio
John Clocker, House Information Systems
Don Seymour, Office of the Speaker
Matt Lira, Office of the Majority Leader
Seamus Kraft, Committee on Oversight and Government Reform

Subj: House Video Pilot Program

Date: June 28, 2011

It was a pleasure seeing you in Washington. Congratulations on the new job! Thanks for your request for more information on the status and proposed expansion of the House Video Pilot Program we've been conducting in cooperation with the Committee on Oversight and the Office of the Speaker. (As a side note, this is the same program I "pitched" to you and Bruce James, the Public Printer of the United States back in 2005, so it was a real pleasure to report to you that we've been able to make this real.)

This program launched on January 5 at House.Resource.Org with a letter from Speaker Boehner and Chairman Issa. I'm pleased to report that the system now has over 1400 videos of congressional hearings available. We have kept up-to-date with current hearings from House Oversight, and almost all of those videos have closed captions. In addition, the Select Committee on Energy Independence provided their full archive, which also has closed captions available. The House Broadcast Studio has been extremely helpful in providing technical assistance to make their archives available.

In addition to current hearings, we have a substantial archive of hearings going back 20 years for House Oversight, and have also added a large number of videos obtained from C-SPAN for House Committees on Rules, Energy & Commerce, Natural Resources, and Administration. I'm pleased to report that these bulk hearings have been made available to the public for viewing in numerous locations, including C-SPAN (which makes copies of all the hearings furnished by the House Broadcast Studio), YouTube, and the Internet Archive.

Technically, we have hosted House.Resource.Org on a dedicated 30-tbyte server located at the Internet Systems Consortium, which provides Internet connectivity for open source programs such as Mozilla Firefox, Linux, and our own servers. We're pleased that this excellent connectivity (several billion bits per second) means that the data is truly available to any organization that wishes to download it.

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We have two proposed expansions of this program:

- Making a larger archive of hearings available.
- Making current hearings available on the Internet.

With the technical assistance of the House Broadcast Studio, we've been able to copy approximately 3,500 hearings across all committees for the last 4 years. Those hearings are now on disk and we are in the process of going through the archive and preparing it for release early this fall. Chairman Issa has discussed this with Chairman Lungren and I believe the next step will be a "Dear Colleage" letter from Chairman Issa.

Making the archive available is an important step, but I believe we can go further and am proposing a fundamental expansion that would go live at the beginning of 2012, making available broadcast-quality streams from every public hearing on the Internet. Making the archive available as well as current hearings would mean that the People's House would truly be available across the country. Being physically present inside the beltway should not be a requirement to see what our House of Representatives is doing.

Today, many hearings are available on the Internet from individual committees. However, each committee has to go through the process of digitizing the hearings, and the House incurs substantial expense in providing webcasting capacity for all viewers. What we are proposing is that all the public channels be made available as broadcast-quality video on the Internet. This bulk video would then be available for a number of uses:

- End-user and consumer-oriented services such as YouTube and C-SPAN (and any other organizations that wished to do so) would be able to ingest the video and then provide it to their users.
- Non-profit organizations such as the Internet Archive and my own Public.Resource.Org would ingest the video and then provide a permanent archive.
- News organizations, including national networks, local stations, and cable channels could access this video, either directly through the bulk feed or more likely by downloading the broadcast-quality file from a service such as House.Resource.Org.
- The Library of Congress, the National Archives could use these feeds to build their own permanent archive of the proceedings of Congress.
- Staff in the House would be able to record any hearing for use on committee or member web sites (subject, of course, to appropriate House rules).

Technically, what we are proposing would be to connect all 24 channels of house video to some video processing equipment, specifically an IP MPEG-2 encoder. What this equipment does is digitize a stream of video and audio and turns it into a 5-7 mbps MPEG2 unicast or multicast stream. We have purchased and have operational in our laboratory the Blonder Tongue IPME-2 encoder, which allows us to put 3 video streams in a 1U rack space, or a total of 8U for the full house. We have 12 of these units currently operational.

Once the video is digitized, we connect it to a Gigabit Ethernet switch and then a router. The switch will have 24 7-mbps channels, or a total of 168 mbps of network traffic. At that point, we would propose that this network traffic be connected in two ways.

The main link would be a dedicated fiber optic line from the video encoders out to the Internet. I am working with the staff of Internet2, the national research and development backbone, as well as with colleagues at C-SPAN, Georgetown, Cisco, Google, and other institutions to engineer the local loop from the Capitol to the Internet2 backbone.

In addition, House Information Systems could choose to make this data available on the House Local Area Network. I've discussed this with John Clocker, and would be happy to go over the security implications of such a connection. Because this is a one-way feed from video with no path back, we believe this would pose no security risk. However, even if the House is unable to make this connection immediately, House staff would be able to access the data from the public feeds. In other words, security or bandwidth considerations on the internal network should not be a reason to delay the public component.

Once the data reaches the Internet2 backbone, it would be available nationally using a technique known as multicasting. We would work closely with organizations such as YouTube, C-SPAN, and university computing centers to make sure that this data would quickly be available to the general public.

I believe that if we get to work now and work through the technical and institutional issues, we can have this public service up and running on January 1. This would mean that in one year, the 112th Congress will have made a substantial change in how congressional hearings are available to the nation and the world. No congress, legislature, or congress in the world has come close to this level of public access. It would be a real testimony to the leadership of the United States House of Representatives to take this fundamental and historic step.

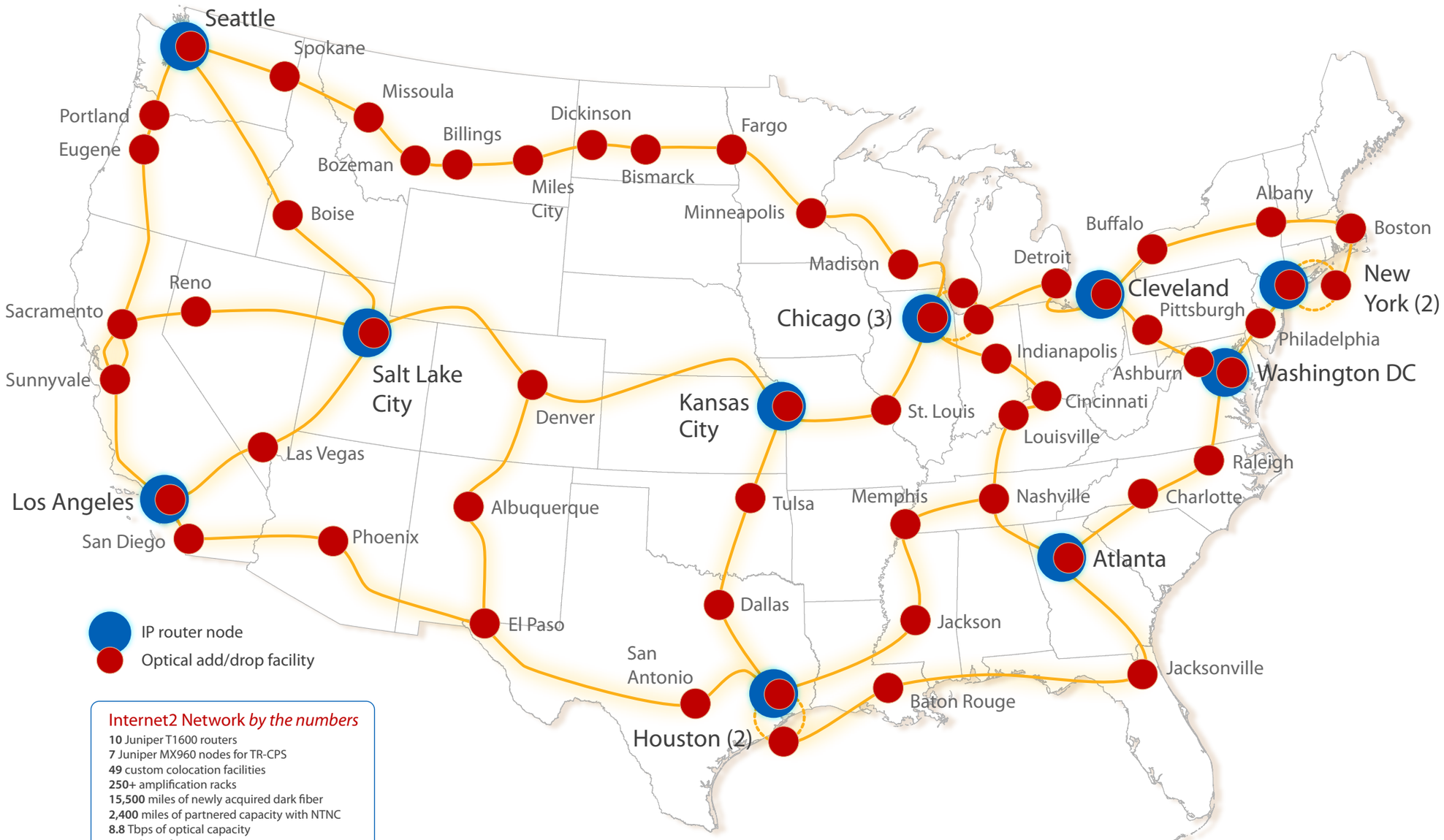
In conclusion, I'd like to stress a few points about this proposed expansion of the pilot project:

- This program does not preclude any other efforts being contemplated by the House or committees. Our efforts supplement existing and proposed efforts and do not replace them.
- This program would make the data available to any organization that wishes to use it without bias.
- Our 501(c)(3) is strictly apolitical and we have been very careful to keep House.Resource.Org that way.
- This program will not cost the House any money and has the potential for considerable cost savings in the future.

I will be in Washington, D.C. again the week of July 25. It would be a pleasure to brief Committee staff and Chairman Lungren on this program, and I'd be happy as well to meet with others that you recommend.

Internet2 Planned 100 Gigabit Infrastructure Topology (DRAFT)

Draft – Last updated 28 Jun 2011



Internet2 Network *by the numbers*

10 Juniper T1600 routers
7 Juniper MX960 nodes for TR-CPS
49 custom colocation facilities
250+ amplification racks
15,500 miles of newly acquired dark fiber
2,400 miles of partnered capacity with NTNC
8.8 Tbps of optical capacity
100 Gbps of IP capacity
300+ Ciena ActiveFlex 6500 network elements

IN SUPPORT OF U.S.UCAN

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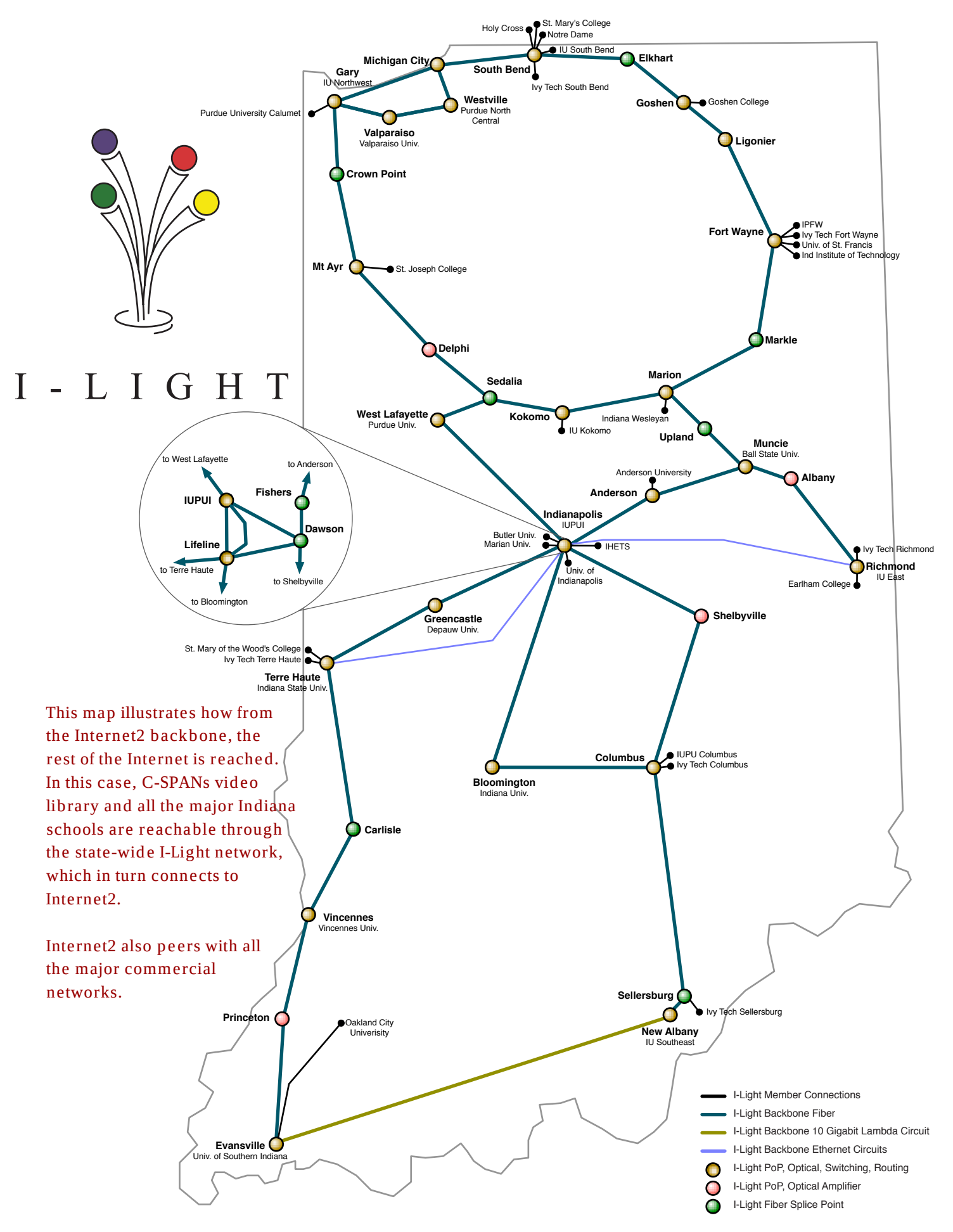
Level(3) COMMUNICATIONS

Northern Tier Network Consortium



This map illustrates how from the Internet2 backbone, the rest of the Internet is reached. In this case, C-SPANs video library and all the major Indiana schools are reachable through the state-wide I-Light network, which in turn connects to Internet2.

Internet2 also peers with all the major commercial networks.

Equipment Proposed for Installation in House Broadcast Studio

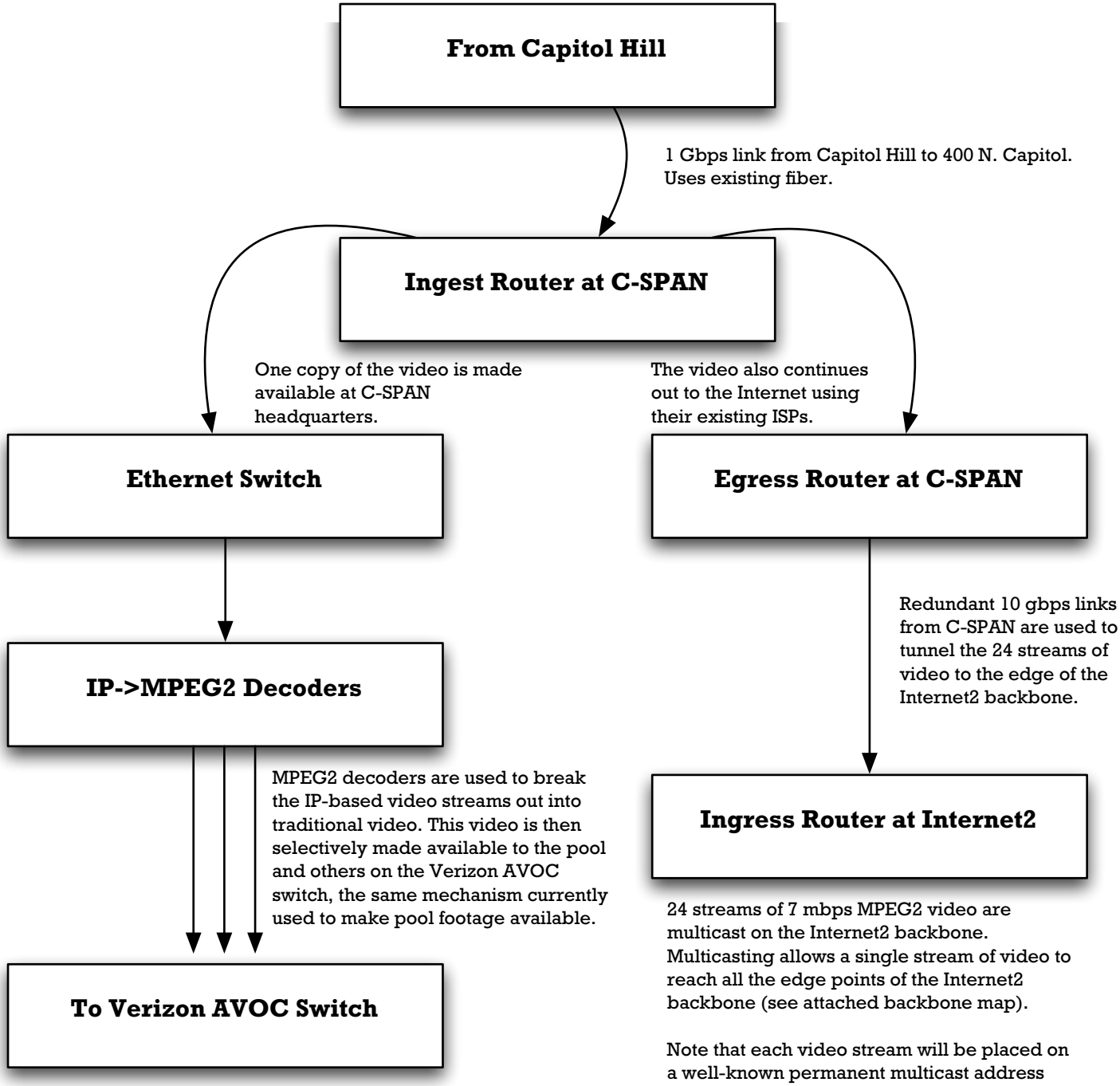
IPME-2 MPEG-2 Encoders take audio in (RCA) and video in (F Connector) from the House Broadcast Studio.

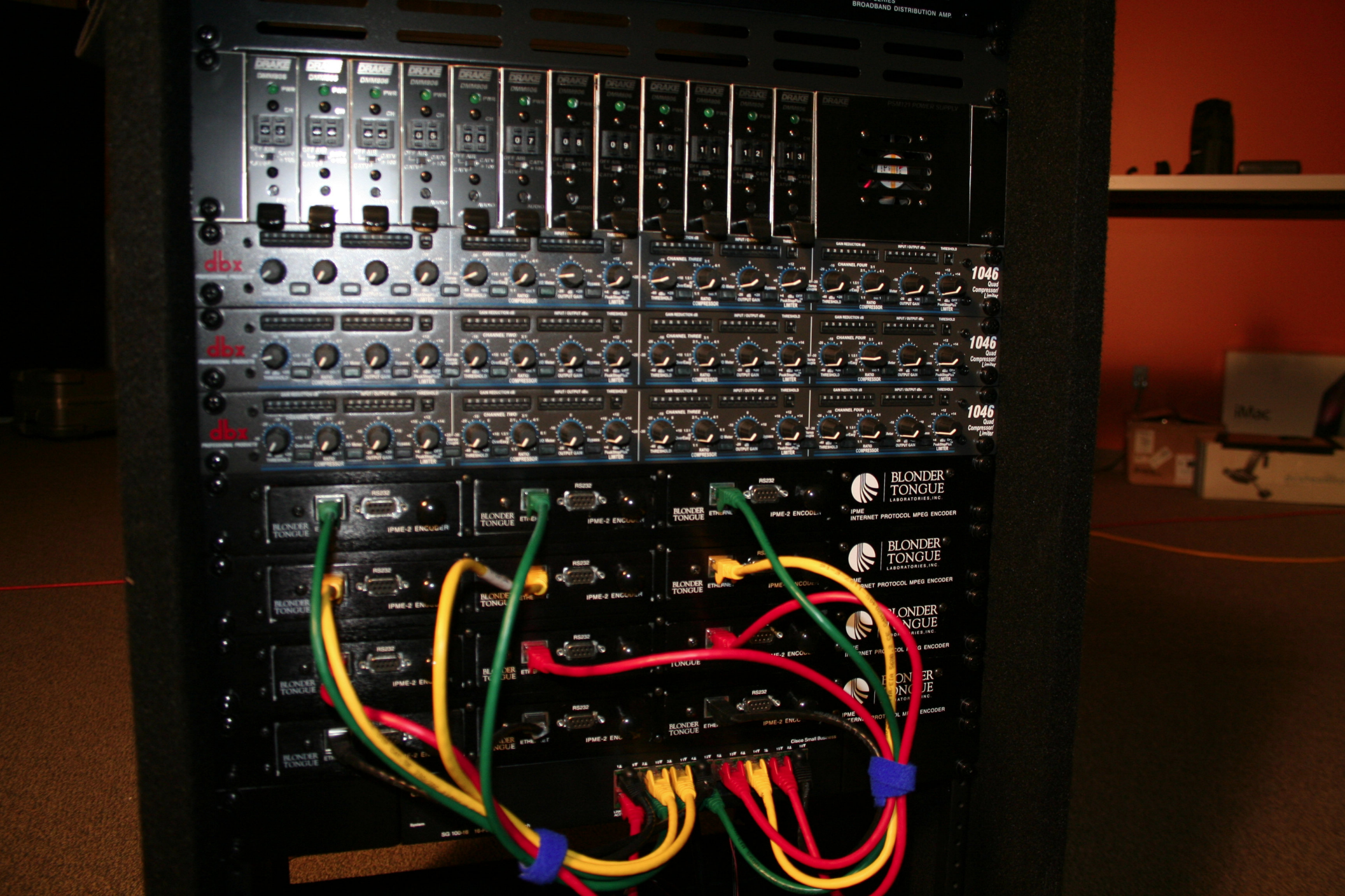
Each MPEG-2 Encoder has an Ethernet cable out to the Gigabit Ethernet switch.

An Ethernet cable connects the switch to the router. All 24 channels flow over this single cable. Total trafficEach MPEG-2 Encoder has an Ethernet cable out to the Gigabit Ethernet Swtich is 168 mbps. Note that at no point is this connected to the House internal network.

The router connects to C-SPAN headquarters at 400 North Capitol. The fiber optic channel runs at 1 gbps or 10 gbps.

High-Level Block Diagram of Connection from Capitol Hill to C-SPAN

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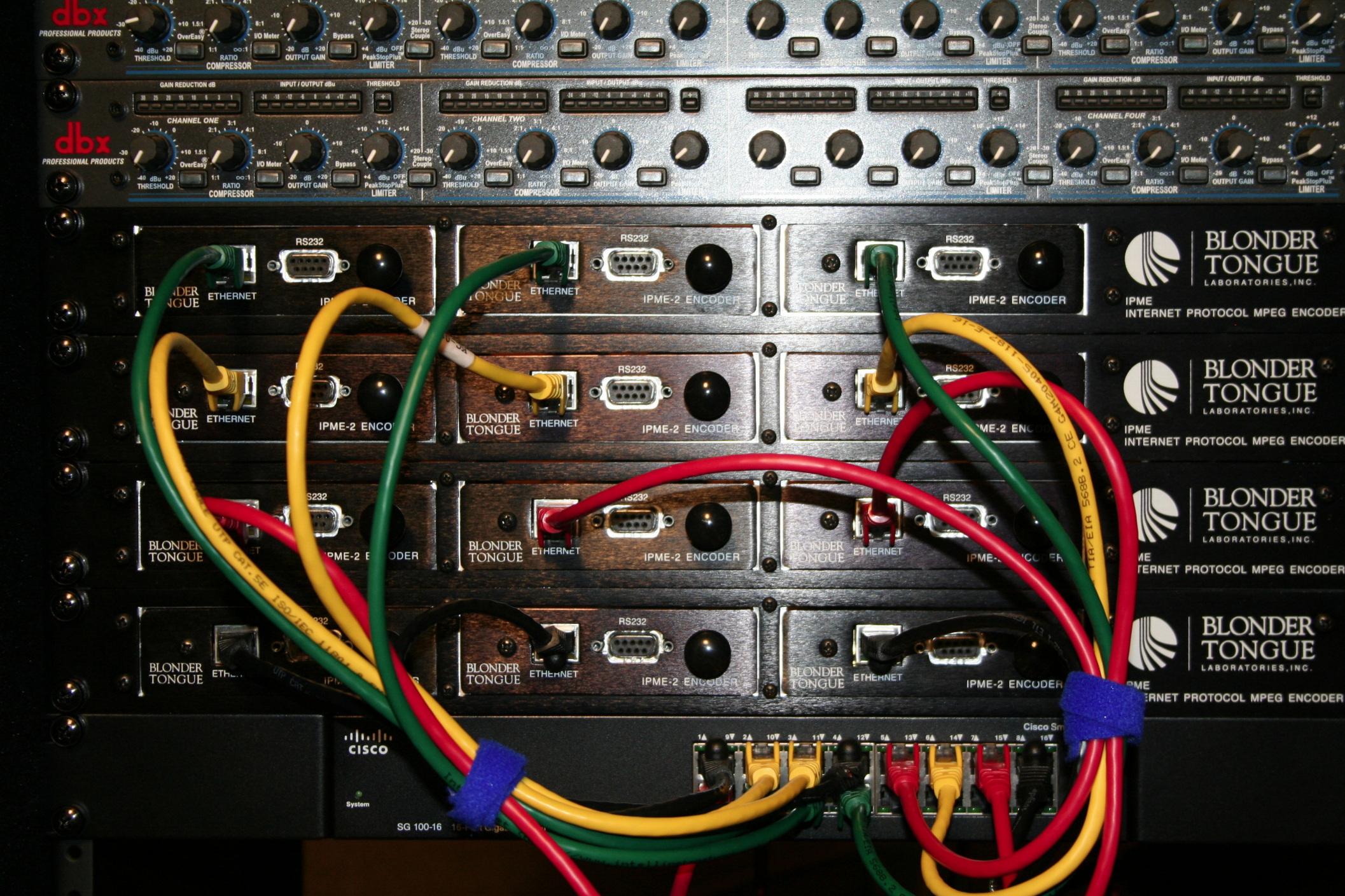
LABORATORIES, INC.
IPME
INTERNET PROTOCOL MPEG ENCODER
IPME-2 ENCODER
RS232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