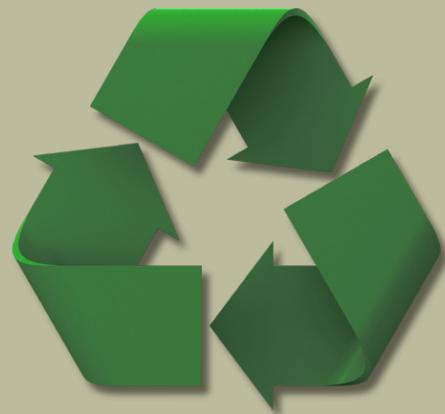


Project Overview

MDOT recently developed and began implementation of a new hybrid, real-time video distribution system utilizing the latest compression technologies.

The need to share video has increased as the ITS industry has grown; however, limitations have surfaced as the technologies evolved. MDOT and its integration team used lessons learned to develop a video distribution solution for the on demand environment.



The system, which leverages H.264 technology and media servers, allows MDOT to provide live streaming video of its cameras statewide, across multiple platforms, both internally and externally, and on demand, reducing network bandwidth, equipment needs, costs, and system complexity along with power and energy consumption.

The use of this technology supports efforts to create a more sustainable environment for the future.



The Carbon Footprint of MDOT's video distribution system will be reduced by about 260 Metric tons of CO2 per year, equivalent to the carbon footprint of about 30 Ford F 150 Pick up trucks driven in a year or 65 round trip flights from Jackson, MS to Tokyo, Japan.



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MDOT Digital Video Migration

*The Cleaner,
Cheaper,
Greener
Alternative*



Project Results

Incorporating both aspects of multi-cast and unicast transport types, the new system is now easily able to distribute video in a multi-cast manner, while using only unicast streams packaged with real-time header information. Using H.264 video format, MDOT is now capable of distributing video over varying network topologies and to external viewers while delivering the content in real-time.

MDOT was able to replicate the costly traditional multicast transport method with off-the-shelf software capable of mimicking the job of the switch or router in the multicast operation. The new method



*Before migration:
Extensive amounts of
TMC equipment*

allows for video to traverse any network that can handle standard IP packets, regardless of the network topology or multicast capabilities. The media server can supply thousands of simultaneous users while only receiving a single stream from the source encoder, drastically reducing the load on the server. The media server, at the same time, also repackages the video from different transport types required by various platforms, such as iPhone and Adobe Flash, allowing for a reduction in duplicated hardware and distribution delay.

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With the new system in place, the amount of hardware, heat and power consumption in the equipment room of the Statewide TMC will be greatly reduced. Prior to the upgrades to the system, MDOT was using 37 high end servers to recompress analog video to Windows Media Format for display on the mdot Traffic.com website. The computers, along with other supporting equipment, are being replaced with a single media server and three encoder chassis. Once the migration is complete the footprint will be reduced by approximately 6 - 96" equipment racks in Jackson. The power consumption of the video distribution equipment will also be reduced from roughly 39,000 to 3,000 watts and the heat from 123,000 BTU to 8,400 BTU. This will result in an estimated savings of more than \$35,000 in electricity costs per year.



Southaven TMC equipment cabinet after conversion

Through this migration, MDOT has created a solution for distributing video across networks, systems, and multiple platforms easier, cheaper, more efficient, and better for the environment.

