

# Advantages of TransitVUE® TPIS



# Introduction



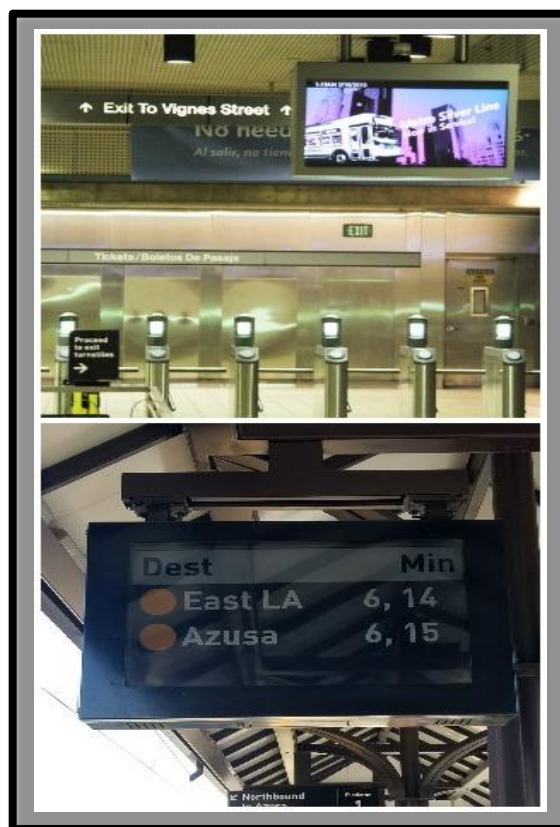
- Today's next generation passenger information systems are the key link between the agency and the traveling public.
- Real-time information for arrival and departure times for trains and buses and a passengers need to get to their destination safely and efficiently is a key component of customer satisfaction.
- Conveniently presenting passenger information side-by-side on the same digital displays reduces operation costs and provides self-service for commuters.



# General Description



- TPIS is a full color, real-time, passenger messaging and information display system.
- TPIS integrates visual and audio messaging into one system.
- TPIS is available as an on-premises or cloud solution.
- TPIS provides automated control of scheduled and live critical messaging such as mass notification in an emergency situation.



# General Description Continued...



- TransitVUE® Professional content management software, used with TPIS, is not a third party software.
- TPIS can be integrated with your existing communication infrastructure.
- TPIS is an open architecture system that can be managed from a centralized or remote location.
- TPIS can be interfaces with your agencies mobile app, website and social media accounts to provide with the same information while waiting at a station or transit stop.
- After TPIS is installed, transit agencies will own their passenger information system.





# Messages can include, but are not limited to:

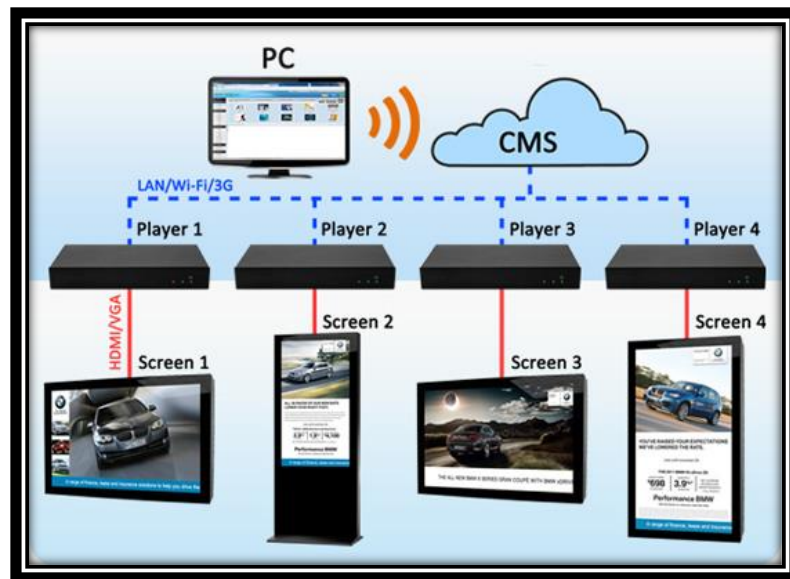
- Real-time or scheduled arrival and departure times.
- Wayfinding for directions, routes and final destinations.
- Service interruptions or delays.
- General safety and warning messages in variable formats. Time of day, date, and temperature synchronized to a master clock.
- 3rd party advertising & agency branding.
- Pre-recorded messages as determined by your agency.



# System Connectivity



- Messages can be launched from the TransitVUE® on-premises or cloud server to a single or multiple digital displays showing the same or different messages.
- Each display will have a station media player that will store messages locally in non-volatile memory in case of network loss.
- Each displays can be connected via Ethernet or optical fiber cable.
- Each sign media player is interconnected to the display by DVI or HDMI.
- Messages shall be displayed in turn, according to the order of priority as determined by the customer.



# System Connectivity Continued...

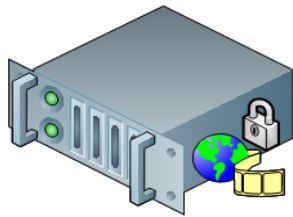
- Videos, high quality graphics and images can be displayed in various Operator-selectable combinations, including overlaying of multiple messages and ticker tape scrolling on a single display.
- TPIS supports interconnection of LCD and LED digital displays.
- TransitVUE® TPIS is consistent with ADA requirements.
- TPIS can be remotely configurable by the Operator.





# Structural Overview

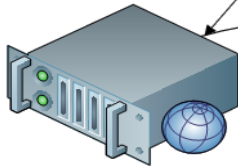
## Centralized Datacenter



### Recommended Server Requirements

- Windows/Linux
- Vantage Server Software
- Dual Pentium IV 3.0+ or Xeon Processors
- 2+ GB RAM
- 200+ GB Hard Disk

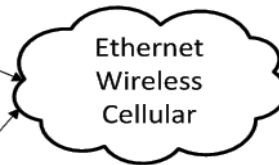
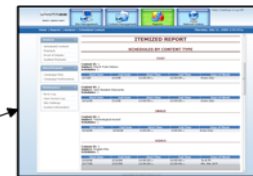
## Media Player



### Recommended Requirements

- Windows 2000/XP or Linux
- Pentium IV 3.0+ or Pentium M 1.5+
- 1 GB RAM
- 40 GB Hard Disk
- Vantage Host Software

## Content Management Web Interface



### TPIS integrates with any of the following:

- LCDs and LEDs
- Networkable PAs
- PDAs/Cell phones
- GPS systems
- Web Pages
- Intrusion Detection

## TransitVUE Workstation



### Recommended Requirements

- Windows 2000/XP or Linux
- Pentium Processor or Higher
- 256+ MB RAM
- 10 GB Hard Disk
- Web Browser (Firefox/Maxthon/etc.)
- Approved Vantage user account



# System Components



- TransitVUE® On-Premises or Cloud TPIS Content Management Server.
- TransitVUE® Sign Media Player.
- TransitVUE® AMDS Series Full Color, High-Definition LED Digital Platform and Station Message Displays.
- TransitVUE® LCDS Series Indoor & Outdoor LCD Digital Displays.
- TransitVUE® Professional Content Management Software.



# Scalability and Integration



- TPIS is a scalable system that will serve your current and future passenger information system network.
- TPIS can be integrated with your existing communication infrastructure, website and social media accounts.
- The TransitVUE® Professional GUI is an easy to use browser interface.
- TPIS can be interfaced with a new or existing public address system.
- TPIS allows for health check monitoring of a sign through SNMP.
- TPIS LCD and LED digital displays are made with UL compliant components, IP64 & NEMA 4X rated, and meet “Made in America” requirements.
- TPIS LCD and LED digital displays are commercial off the shelf or made to order with optional audio & outdoor speakers and security cameras.
- TPIS supports CobraNet and Dante networked digital audio.
- TPIS supports real-time information (GTFS-RT) and integration with existing CAD/AVL system, through an open platform API, JSON or XML file data feed.



# Information Sharing Between Agencies





# Automated System Monitoring



## ■ 24/7 Monitoring of TPIS system

- Automated health monitoring of individual displays and media players.
- This includes resource management and security management.
- Automated monitoring of all software running on the system.
- Automated monitoring of network activity and general health of the TPIS system, as well as monitoring of network for unauthorized systems.

## ■ 24/7 Reporting of Alerts or Problems

- Customized automatic email alerts for various problems.
- Unauthorized machines connected to network.
- Unresponsive displays and media players.
- Unresponsive network.
- Software and messaging issues.
- Times not showing/times taken down (dependent on information being sent to the media player through the network).



# Automated System Monitoring Continued ...



## ■ Automated Patching/Update Tools

- Automated patching and updating of software on every machine simultaneously, automated update to software can be scheduled for after hours to ensure maximum uptime for all media players.
- Automated refresh to all TPIS machines simultaneously when an update is made to the TPIS system, automated refresh can also be scheduled for off hours to ensure maximum uptime for all media players.

## ■ 24/7 Documentation and Reporting

- System reports can be generated at any time, which can show anything from a general system health status, to showing detailed information about each machine as well as network health status and uptime.
- Documentation can be used to do a detailed inventory report and a monthly performance report.
- Documentation can also be provided to show software installation/patching activity on all machines, including a log which user logged in and performed the action.



# Automated System Monitoring Continued ...



- **Agent Security**

- The architecture is central to providing maximum security. Each managed system has a light-weight agent installed that initiates all communications back to the server. Since the agent will not accept any inbound connections, it is impossible for a third-party application to attack the agent from the network. There is no way to circumvent the login process and initiate a connection to the agent because the agent does not have this capability.

- **Firewalls**

- The software does not need any input ports opened on client machines. This lets the agent do its job in any network configuration without introducing susceptibility to inbound port probes or new network attacks.





# Automated System Monitoring Continued ...



- **Encryption**

- The software is protected against man-in-the-middle attacks by encrypting all communications between the agent and management server with 256-bit RC4 using a key that rolls every time the server tasks the agent (typically at least once per day). Since there are no plain-text data packets passing over the network, there is nothing available for an attacker to exploit.

- **Secure Access**

- Administrators access the remote server through a Web interface after a secure login process. The system never sends passwords over the network and never stores them in the database. Only each administrator knows his or her password. The client side combines the password with a random challenge, issued by the management server for each session, and hashes it with SHA-1. The management server side tests this result to grant access or not. This unique random challenge protects against a man-in-the-middle attack sniffing the network, capturing the random bits and using them later to access the manage server.



# Cost Savings and Benefits



- **Convenience for Use in Public Transit:**

Customer service improvements via availability of real-time arrival time and vehicle location information schedules, destinations, wayfinding, safety messages, service alerts, and various audio announcements.

- **Increase in Rideshare**

Next generation passenger information availability and customer satisfaction will yield to an increase in rideshare not only for repeat riders, but also through new users.

The positive experience of regular riders would create “word-of-mouth” advertising for people not familiar with using a public transportation system.

- **Labor Cost Saving for the Transit Service Providers**

Transit agencies will no longer need to hire additional customer service personnel to aid passengers for information query due to installation of TPIS. Transit service providers will be able not only to reduce their labor cost but also help their passengers to save time, but have a safe and satisfying commute.



# Cost Savings and Benefits Continued...



## Flexibility

1. TransitVUE® TPIS displays are manufactured in various sizes and configurations, so you are in charge of displaying your messages, managing your costs, delivering stunning public display performance, and adapting to multiple applications with ease.
2. From content creation to system design and installation to network management, our end-to-end solution supports all aspects of the system. Incidence reporting relays local schedule changes back to administrative personnel. In addition, network monitors can be put in place, which will notify the operator automatically of issues with the network, displays or content.
3. TPIS is an open architecture network for interfacing with new or existing systems.
4. TPIS utilizes off-the-shelf, non-proprietary components which reduces overall cost of the systems, yet can be customized to fit your needs.





# Cost Savings and Benefits Continued...



- **Environmental Benefits**

Implementation of TransitVUE® TPIS into mass transit systems contributes to the reduction of greenhouse gases and other toxic pollutants emitted by vehicle on the streets. According to *“New Fiber Optics Makes Subways Cleaner, Greener”* from Hispanic Business Magazine, May 2008, Los Angeles officials feels the critical importance of getting people to use public transportations. More subway riders equates to less drivers and less pollution on the congested streets of Los Angeles. By providing technologically advanced information systems like TransitVUE® TPIS for their customers, transit agencies nationwide attract more rides for convenient and easy way to commute.

Green Technology



# Warranty



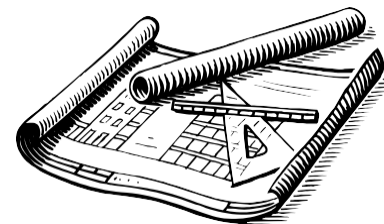
- All TransitVUE® products come with a limited warranty on all parts and labor for two (2) full years from date of delivery against defects in manufacturing. TransitVUE® will repair or replace any defective item to your satisfaction!
- All TransitVUE® personnel are factory trained to service any portion of the system.
- Optional extended warranties are available.



# Design



- We have the capability to work with your agency to design a new passenger information system or upgrade your existing one to next generation levels. We work closely with your agency to make sure we address all of your specific needs and concerns so that we can design your passenger information system to meet your current and future messaging needs.
- Our advanced, yet cost effective designs make it possible to have the kind of passenger information system you require without “breaking the bank”. We utilize the latest design tools and our engineers are well versed on ADA criteria and design standards.



# Test and Commissioning



- Once TPIS is installed, we will be there to test each display for start-up, operation and functionality.
- Next, we will test power and network connectivity to your TPIS on-premises or cloud server.
- We will then test TransitVUE® Professional for provided content, including real-time arrival and vehicle location information, scheduled messages, agency logo, Ad Hoc message (text to speech) and other content produced by your agency.
- Tests will include the content, accuracy, clarity, and quality of messages.
- Once completed, we will commission the entire TPIS network. This will include single displays, a group of displays and all displays on the network.
- These are only the basics. We can test and commission any variation to fit your agencies needs.





# Maintenance



- Once your system is installed, we will be there to maintain and service it for you.
- Day or night, Transitvue Communication Systems service personnel will be available 24 hours a day, 7 days a week, 365 days a year if required.
- We have personnel located locally to you, so our response time and associated service and maintenance costs, such as parts replacement will be significantly lower and faster than other companies.



# User Training



- Upon completion of full deployment of all sites and immediately following acceptance testing, TransitVUE® can providing training that will allow agency service technicians the ability to perform Tier 1 support.
- Training can be 1-time only, or on a yearly basis, you decide.
- Training can be on-site or remote, whichever fits your agencies availability.
- Training is for up to 10 people and will include a maintenance and troubleshooting manual for both the hardware and software



# When you're ready to take the next step, we'll be there to...



## "CONNECT YOU TO THE FUTURE OF NEXT GENERATION PASSENGER INFORMATION MESSAGING SYSTEMS."



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