

# A Paradigm Shift for Dispatch Consoles *From hardware consoles to a licensed, evergreen software platform*

*By Michael Branning, CEO.*

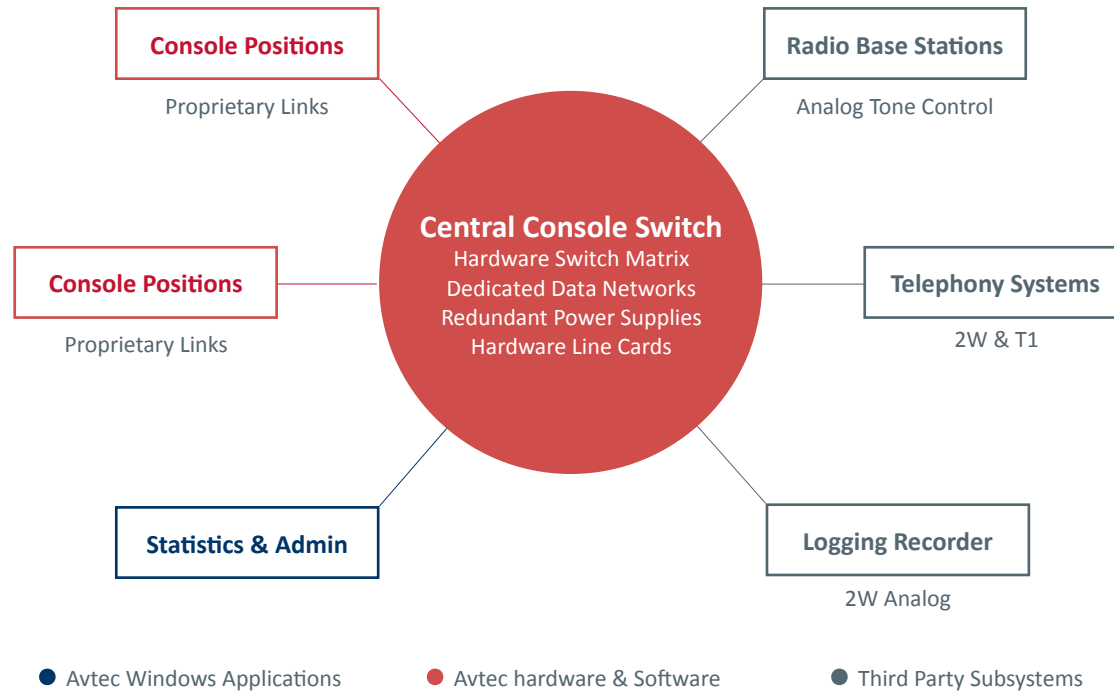
Dispatch console operators in the 1950's and 1960's operated radio dispatch consoles built into heavy metal furniture with incandescent lights and hard wired pushbutton switches.

These consoles controlled conventional radio base stations using tones or DC current over copper wire. In the early 1980's, most console systems products began a transition to microprocessor control, with proprietary hardware with embedded firmware remote controlling radios and telephones over analog and T1 circuits. For

over fifty years, organizations purchased a console system as a piece of capital equipment. It was usually acquired via an RFP process, installed and maintained 10-15 years, and then the process repeated with a new procurement.

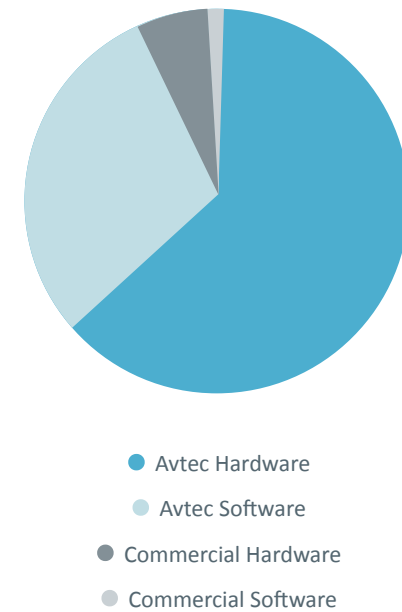
## The Legacy Console Model

Old methods are no longer sufficient.



## System Content Cost Drivers

Proprietary hardware had a large effect on cost.



### Transition to VoIP

Like telephony systems, dispatch consoles began a transition to VoIP technologies in the last 15 years. As PCs running Microsoft Windows have become more powerful, radio and telephony systems changed to IP connections, and a fully software-based console system running on commercial off the shelf (COTS) PC hardware became practical.

The first part of the paradigm shift is that customers can now architect a full-featured console system with little or no proprietary hardware. As proof, Avtec is deploying an

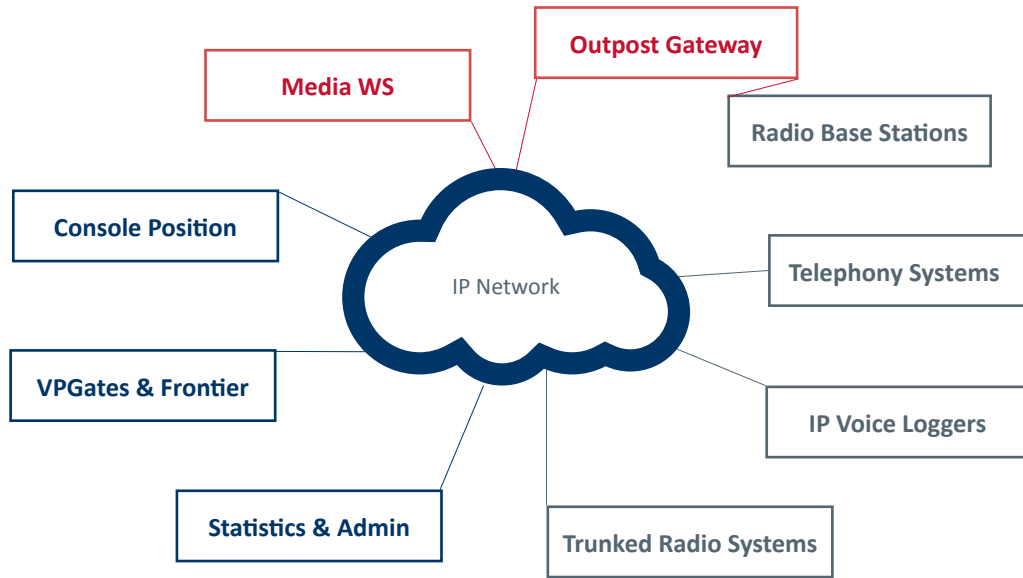
Enterprise Scout console system planned for 400+ consoles and 4000+ endpoints (radios/phone lines) for a major US Railroad running on PCs supplied by the customer. This empowers them to use standard IT supply contracts with companies like HP, Dell, Lenovo, Cisco, Microsoft, etc. to streamline procurement and to reduce management, training, and maintenance costs.

With this change customers now have many more choices of form factor, performance, and even cosmetics for their hardware to tailor the installation to their exact needs. As

years go by, PC hardware can be incrementally refreshed as needed, based on a flexible set of criteria established by the customer, and at competitive prices. Even if customers choose to equip their system with specialized long-life hardware components such as dedicated Media workstations, speakers, and microphones, all of the remaining hardware is COTS.

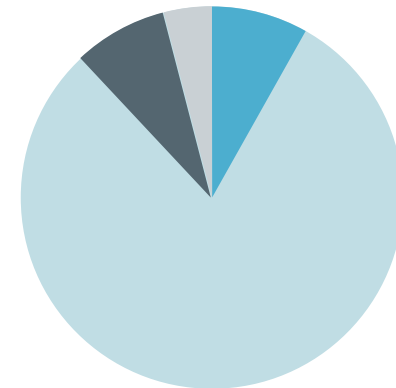
## The Scout IP Console Model

Mitigate risk with a software-based system.



## System Content Cost Drivers

Hardware costs are greatly diminished.



- Avtec Hardware
- Avtec Software
- Commercial Hardware
- Commercial Software

### Extended System Life

Because the dispatch console system is now a software application, when would the customer buy a new console system? This is the second part of the paradigm shift... the answer is the system life may extend to many decades. To examine this claim, you must look at the historical reasons for replacing a console system. We've replaced hundreds of console systems where our customers told us things like:

- The existing console system has become unreliable, with failures of the old hardware.
- The existing console is built on an older platform/technology that places us at risk.
- Our new radio or phone system isn't compatible with the existing console system.

- The existing console isn't flexible enough to support new requirements & operational initiatives.
- The existing system doesn't provide the data we need to optimize our operations.
- The manufacturer obsoleted the existing system and is no longer supporting it.
- The manufacturer doesn't provide good support or is no longer in business.

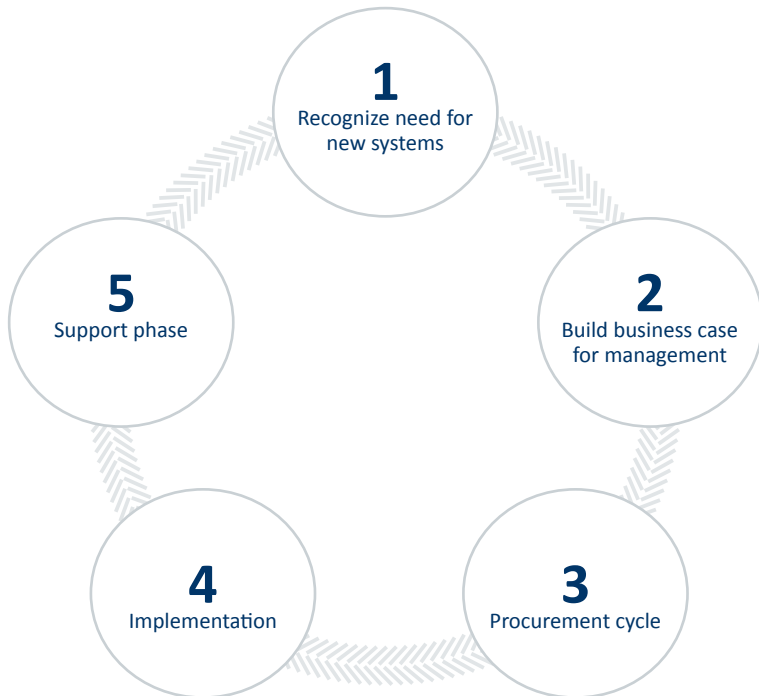
With a software-based Scout console system from Avtec, these risks and issues can each be mitigated. Instead of buying a system, running it for 10 years and then replacing it, the Scout software is regularly updated via the ScoutCare software maintenance program.

### Paradigm Shift

This is a paradigm shift from the "replace the console system every 10 years" model. Why is this important? Let's examine the old console system business model...

# Old Console Business Model

Hardware lifecycle dominates system replacement.



<p><b>1. Recognize need for new system</b></p> <ul style="list-style-type: none"> <li>• Usually the shortcomings have been apparent (or acute) for some time</li> <li>• Replacement will be difficult due to research and procurement processes</li> <li>• Must live with the issues for at least 12 months and often 2-3 years until a replacement system is in service</li> </ul>	<p><b>2. Build Business case for management</b></p> <ul style="list-style-type: none"> <li>• Research and gather technical requirements</li> <li>• Try to anticipate needs for next 10+ years, risk of wrong bet could end career</li> <li>• Collect budgetary pricing</li> <li>• Seek capital budget</li> <li>• May not get funding in 1st year</li> </ul>
<p><b>3. Procurement cycle</b></p> <ul style="list-style-type: none"> <li>• Identify qualified vendors</li> <li>• Create and issue a Request for Proposal (RFP)</li> <li>• Evaluate proposals from multiple companies</li> <li>• Schedule demos and seek to understand their unfamiliar products</li> <li>• Sort through all the “Sales Puffery”</li> <li>• Seek internal agreement on Vendor selection</li> <li>• Negotiate a contract with Vendor and Legal</li> </ul>	<p><b>4. Work with selected vendor to implement system</b></p> <ul style="list-style-type: none"> <li>• Additional workload on technical staff on top of their regular jobs</li> <li>• Install equipment and pilot operation.</li> <li>• Train administrative and operational staff on new system</li> <li>• Deal with resistance to change from dispatchers</li> <li>• Place system into active service</li> <li>• Sort through minor issues and achieve system acceptance</li> </ul>
<p><b>5. Manage system over next 10 years (+/-)</b></p> <ul style="list-style-type: none"> <li>• Hardware and software support from vendor</li> <li>• Upgrades/updates to system, if available</li> <li>• Limited options for new hardware or capabilities</li> </ul>	

# New Console Business Model

The Scout system is versatile, modular and flexible



<p><b>1. Strategic examination of needs</b></p> <ul style="list-style-type: none"> <li>• How can we operate more effectively?</li> <li>• What new business needs must be addressed?</li> <li>• Can we lower costs through greater efficiency?</li> <li>• Should we implement a disaster recovery or mutual aid strategy?</li> </ul>	<p><b>2. Software upgrades</b></p> <ul style="list-style-type: none"> <li>• Research and gather technical requirements</li> <li>• Try to anticipate needs for next 10+ years (the wrong bet could end career)</li> <li>• Collect budgetary pricing</li> <li>• Seek capital budget</li> <li>• May not get funding in 1st year</li> </ul>
<p><b>3. Evaluate opportunities for operational improvements</b></p> <ul style="list-style-type: none"> <li>• How can new product capabilities save money, save time and reduce risk?</li> <li>• What's our vision for the future?</li> <li>• What feedback should we offer software vendor for the product roadmap?</li> </ul>	<p><b>4. Introduce new capabilities to users</b></p> <ul style="list-style-type: none"> <li>• Install software upgrades to support future vision.</li> <li>• Pilot new features to get feedback, reduce disruption and risks, and socialize change with users.</li> <li>• Plan a gradual or all-inclusive roll-out depending on needs.</li> </ul>
<p><b>5. Ongoing support</b></p> <ul style="list-style-type: none"> <li>• Technical support from vendor</li> <li>• Updates released regularly for new features, new capabilities, and security patches</li> </ul>	

Because Scout is a highly configurable and modular system, it is highly unlikely a “fork-lift” replacement will ever be needed.

Instead, regular maintenance activities combined with a view towards operations improvement is conducted. Consider the reasons for replacement and how Avtec addresses these risks: In the old model, the cycle repeated with significant cost and effort expended every 10 years or so to procure a new system. With a versatile software based console system, these hidden costs can be avoided with efforts focused instead on improving efficiencies with the existing system.

## Old Model Problems & Frustrations

**The existing console system has become unreliable, with failures of the old hardware.**

Scout runs on standard COTS hardware, which may be replaced or upgraded using existing supplier contracts, reducing capital, support, and overhead costs.

**The existing console is built on an older platform/technology that places us at risk.**

Scout is a collection of applications that run on industry standard Windows computers using standard IP networking. Scout has no TDM backroom equipment or a third party telephony core providing switching.

**Our new radio system isn't compatible with the existing console system.**

We support more complex integrations to digital radio systems than any other console company. We are adding more every year to ensure options for our customers.

**The existing console isn't flexible enough to support new requirements and operational initiatives.**

Scout's system design can be fully distributed and its GUI user customized to an infinite degree. Scout scales to hundreds of consoles and thousands of endpoints.

**The existing system doesn't provide the data needed to optimize operations and manage liability.**

Scout includes the ability to capture activity data to manage dispatch operations as well as metadata/voice on external recorders to ensure compliance with regulations.

**The manufacturer has obsoleted the existing system and is no longer supporting it.**

In all the years since our company's founding in 1979, Avtec has never obsoleted a system. Our business was built on supporting our legacy customers.

Avtec has been in the console business for over 30 years, with \$29M in Revenue and 110 employees. We focus exclusively on developing the Scout console system and supporting our legacy customers. We have grown revenues over 20% per year for the last six years, have never obsoleted a system to force an upgrade, and provide the best support in the console business.

## Move forward with an Evergreen Solution

### Benefits of the new business model:

*Total Cost of Ownership (TCO) is lower*

- Hardware is non-proprietary
- Non-value-add overhead activities of procuring new systems are eliminated
- Disruptions to service replacing a system are eliminated
- Stress and Risk to the operation during a “forklift” upgrade are eliminated
- Choose from multiple supported radio systems; competition drives down costs

*Maintenance brings regular new benefits to the organization*

- New features/capabilities can improve efficiencies and user satisfaction
- Compatibility is maintained with the latest IT platforms
- User feedback provides input to roadmap for future upgrades

*Software-based configurable system allows gradual migration to future state*

- User interface can slowly evolve to introduce new features
- System supports many radio technologies simultaneously

### What are the objections?

Avtec's software maintenance and remote services program (ScoutCare™) is an annually recurring cost. Many organizations dislike these fees; it's often mistaken as “paying for technical support calls” by those familiar with the traditional hardware equipment purchase model. While technical support and training services are included with ScoutCare, much of the benefit is derived from four types of software maintenance activities:

- 1. Adaptive** – modifying the software to cope with changes in operating systems, hardware platforms, and integrations to external systems. Console systems integrate many third-party systems and components, most of which include complex software. As these change over time, compatibility modifications and regression testing are mandatory. Security vulnerabilities also must be addressed as discovered. Adaptive software maintenance provides compatibility with the latest versions of Windows, radio and telephone systems.
- 2. Perfective** – implementing functional enhancements to the software. Examples are new user interface features, connectivity, and improvement in management tools.
- 3. Corrective** – diagnosing and fixing errors. No system is perfect, so issues are resolved on a priority basis. Patches are occasionally released when a high impact/high urgency issue emerges, while errata with workarounds are fixed in general software releases.
- 4. Preventive** – increasing software maintainability or reliability to prevent future problems. Better diagnostics, improvements in redundancy mechanisms, and better error handling of user input are some examples of preventative software maintenance.

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Organizations recognize that many systems are moving from proprietary hardware to standards-based IT platforms, yielding many benefits and a few new challenges. Fundamentally, as long as Software Maintenance is carried, the system that you choose today will evolve and stay current, reducing the chance of a forced upgrade.

For the system supplier, the steady revenue stream from Maintenance evens out a “lumpy”, sometimes unpredictable replacement equipment market. This reduces supplier business risk and supports good long-range decision making, including the ability to continue to invest, improve the product, and support the customers.

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