Third Time's the Charm:
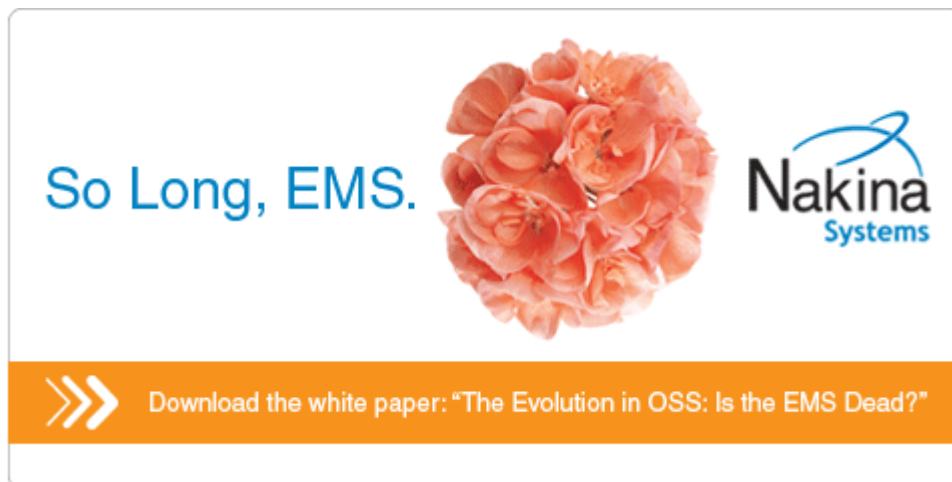### Capitalizing on Technology Improvement
By: Tom Wiencko

How's your health? Had your blood pressure checked lately? Getting that annual physical annually? Eating right and getting regular exercise? Taking all your medications?

Good thing we don't ask these questions of our existing generation networks. They would mostly fail the checkup, and a few would be transferred directly to intensive care.

Fortunately for some parts of the industry, we get to make like the Six Million Dollar Man and recreate ourselves, stronger, better, faster than ever. We get a second chance to do things right. For some this is even a third or fourth chance. Because of the complexity and sophistication of the new technologies, for the first time, OSS systems need to be considered as a critical component of the initial deployments. Like the support team for a world class athlete, we in the OSS systems world need to be ready.

So many parts of the network are about to undergo major technology updates that we have an unprecedented opportunity to learn from the lessons of the past and get a few things right on this try. Things like making sure we have good network monitoring systems in place when we put equipment into service. Like making sure we can find circuits when we need to fix them. Like being able to identify and correct performance problems before customer service calls up and tells us the call center volume has gone through the roof and somebody from the call center calls plaintively asking: "Could you please do something about it?"

The life you save could be your own. A number of interesting things are coming to pass in this particular round of technology improvement. The first is that we are on the verge of moving orders of magnitude more information than we currently transport. That means massive amounts of transport, much more use of high speed technologies over fiber facilities, and a lot more traffic for our network monitoring systems to manage. Fiber-to-the-everything is on the

horizon. Sprint announced they will be deploying WiMax. Auction 66, a massive sale by the US Federal Government is well underway at this writing and is poised to provide spectrum for wireless 3G services enabling high speed data, video on demand, and a host of other advanced services.

The second is that some of these technologies (particularly the wireless ones) will allow us to serve communities and areas of the country and world that currently have little or no available communications. Wireless technologies in particular have an opportunity to provide basic and advanced communications technologies to even more rural and remote communities, as well as inner cities which are sometimes surprisingly difficult to serve with landline-based facilities.

A third is that the new infrastructure is substantially more "intelligent" than existing plant. Auto configuration, auto provisioning, and auto discovery are now the norm, not bleeding edge technologies. Enhancing this capability is the headlong trend on the part of most equipment vendors to replace proprietary interface technologies with standards-based implementations. The effect of this will be profound for the O&M world. We can finally catch up to our IT brethren with the ability to discover, configure, and provision network elements and even entire networks from a desktop 1000 miles away. Soon the days when you need to dispatch a tech on a four-hour drive with a floppy disk to reconfigure a balky base station will be over. Adaptive antennas with electric downtilt and beam steering capabilities mean we can do almost unbelievable performance work on the network without ever leaving the break room.

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All of these trends taken together mean that we can deploy highly configurable, highly intelligent networks which can be monitored and maintained in real-time and from a distance. Only two final things need to come together to deliver on the promises of the new technology: OSS systems that take maximum advantage of these new technologies, and aggressive deployment of these OSS systems. The potential to control capex during deployment, and opex during operation is significant.

Fortunately for aggressive OSS systems vendors, even more riches are available to help. Information processing technologies, both hardware and application enabling systems, have made major improvements in capability and cost. Computer hardware is so cheap and powerful that it can be considered a commodity for most purposes. Enabling software, whether of the proprietary or standards-based flavor, is plentiful, powerful, and inexpensive. Low-cost technology now exists to provide capabilities that only a few years ago would have seemed more like science fiction. These capabilities can be delivered to inexpensive laptop computers running nothing more than a standard web browser.

All we need now to enable the "perfect storm" is for all of these components, and the companies that provide and use them to work together to take advantage of all of the technological riches lying at our collective feet. The road ahead may be a little bumpy as large scale deployments begin to occur, but the ability of the industry to put massive amounts of capability into the ground very quickly makes this an exciting time in the industry. The OSS segment of the industry plays a pivotal role as never before in enabling the deployment and operation of these networks.

The race is about to begin. When the gun goes off, the results will be faster than ever. Support systems that are up to the challenge, able to manage the scope and complexity of the next generation, are needed. The results will provide networks that enable the next wave of communications-based applications and support new uses and products that we can only imagine now.