

# Field Service Computers: Consider the Variables—and the Benefits

Communications platforms, ruggedness, software, and other factors all play a part in your purchase choice.

BY CARL J. LEVESQUE

**W**hen a utility considers equipping its field service work force with computers, the decision-making process often starts with software—not with questions about the ruggedness of the utility's field device, or whether the company should go with a Panasonic or an Itronix laptop.

"[The software that drives the decision commonly is] a dispatch-oriented software, either that has been custom built by someone in the utility or that they purchased," says Jeff Thomas, marketing communications manager at Itronix, in Spokane, Wash. "Then they say, 'Jeez, I want to take this application and use it in a mobile work force environment so that what I see is the same thing that my mobile worker sees when out doing his service calls.'"

From there the ball starts rolling. The utility might contact a software supplier to explain what it wants to accomplish out in the field; the supplier then could either send the utility something out of the box or a custom-written program.

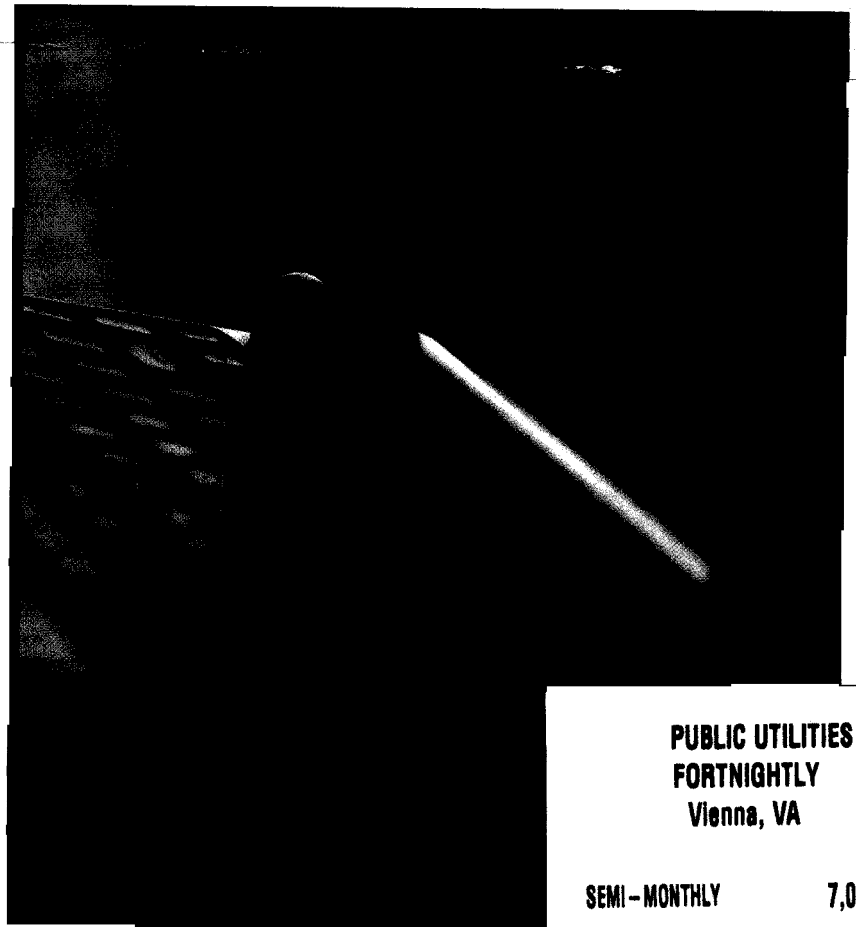
Only at that point are considerations raised about the actual device that will be placed in the hands of the technicians: What platform should it run on—a notebook? A handheld? Finally, once a utility starts considering

the devices, there are questions of how rugged the devices need to be, what communications platforms will best suit its needs, and, of course, the omnipresent technology-purchasing considerations of obsolescence.

### The Software

Software considerations lie at the heart of a field service computer initiative, largely because of coverage issues. Anyone who has a cell phone knows about going out of coverage—the device becomes, if only temporarily, useless. Same goes for a wireless laptop or handheld used by a field service worker. "What you really do is design with acknowledgment of the problem," says Judy Johnson, senior vice president of marketing at Fieldcentrix, in Irvine, Calif. "You can't solve the problem because the problem is that wireless coverage is not perfect."

How do Fieldcentrix and other software providers "acknowledge" the problem? By enabling the computer to continue operating, and storing information, while out of coverage. Johnson says about half the vendors working in



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the field service space are able to offer that capability. "It's harder to do, but everybody's getting there," she says. "Because otherwise, whenever you're out of coverage, it's out of coverage, out of luck."

One company that emphasizes the importance of being able to synchronize with the home office after going out of coverage for periods of time is iAnywhere Solutions, in Dublin, Calif. Clearly, the company views this ability as one of its selling points. "When you're in a field service environment, you're going to be in situations where you don't necessarily have access to your corporate office," notes iAnywhere Group Products Manager Mike Paola. "You might be in remote areas where you don't have that connection. So it's really important for us to be able to provide them with a local data store, and then again once they are in coverage, to be able to synchronize that information back."

The ability to store data and sync once coverage is available is important for other reasons as well, Paola points out. Connecting through wireless costs money, so the ability to sync on a periodic basis as opposed to being constantly connected saves dollars. Further, having to stay connected constantly would suck up the battery—another reason why data storage and synchronization ability is important.

Northeast Utilities, in Berlin, Conn., a customer of iAnywhere, corroborates the importance of being able to store data now and sync later. "It's critical for us to maintain the minimum amount of data over the wireless system, just for effectiveness and price and everything," says Andy Kasznay, software engineer at Northeast Utilities. Partially because of this synchronization and storage ability, Kasznay says his company pays roughly \$30 a month per user to transmit data.

Once a utility starts considering the devices, there are questions of ruggedness, communications platforms, and, of course, obsolescence.

#### Laptop or Handheld

With computers getting smaller and more powerful in all arenas, the options in the field service space continue to grow. Itronix, one of the largest players in field service computers for utilities, offers an array of devices, from the ultra-rugged laptop to the semi-rugged handheld. A utility considering a purchase of these devices must make the decision of whether to go compact and convenient, or large with more screen space. Some might assume that handhelds are the wave of the near future, but although they are constantly improving in performance and flexibility, what the device will be used for drives the decision of whether to go with a laptop or handheld.

"It depends on the application," says Matt Gerber, vice president of marketing at Itronix. "We have utility customers that use the full spectrum of our products. On one extreme, you've got, let's say, a trouble call operation where we typically see laptops. And what's driving that is, when you have someone in real time, you want to give them street maps, you want to give them graphics of, if it's an electric utility, what the line configs are like, so the trouble man knows where the switches are. So that's typically [a situation for] big displays, a lot of information."

But that same utility, says Gerber, might buy an Itronix Windows CE device for people who are doing credit and collections—an application where handhelds are prevalent. Another application for handhelds is meter reading, because a larger screen is not needed and it's generally a matter of

simply looking at one customer's data.

Northeast Utilities uses laptops—primarily CF-27s and CF-28s from Panasonic Computer Solutions, Secaucus, N.J. (around \$5,000 per computer)—for such applications as environmental tracking, in which it tracks hazardous material spills, and "call before you dig" situations. With the heavy use of maps for such applications, the need for laptops as opposed to smaller devices is obvious. It also uses handhelds for such applications as substation inspections, although the handhelds are not wireless—synchronizing is done at the end of the day when workers return to the shop.

Does Kasznay think handhelds will take over some of the applications that laptops currently dominate?

"It's an interesting question," he says. "Right now, we've gone pretty much with full Windows-type devices, and that increases our flexibility to give [new] applications to our users. And our developers are more familiar with that paradigm than the tablet-based paradigm. It's something we're keeping a very close eye on, but we haven't really deployed anything within our organization."

What about devices that can be worn? Mobile computing giant Itronix, which doesn't currently offer a wearable, is playing that issue conservatively. Are wearables the wave of the future? "They may be, but we're going to go into it one step at a time," says Thomas, adding that he has no comment on the if and when of an Itronix wearable.

As for concerns over obsolescence, Kasznay says his utility plans for its

laptops to have a three-year life—about the same as a traditional laptop—before it “reaches its own obsolescence.” In that sense, any concerns over obsolescence are not so different from the purchase of other computers.

#### **Built To Last**

And then there is the consideration of how rugged the device needs to be. Like the laptop-or-handheld question, it depends on the application, says Gerber. For instance, the service-and-repair “trouble” crew members who are outdoors 24 hours a day in all weather extremes require devices that are “ultra-rugged”—a generally recognized term (based on military spec standards) meaning that the device can withstand 54 consecutive drops while in operation without shutting down. (Comparable standards for dust, liquid, etc., also apply.) Itronix’s GoBook MAX is an example of an ultra-rugged device.

Credit and collections workers, meanwhile, merely require devices that fall in the lower, “rugged” category, meaning that the devices can withstand 26 consecutive drops, with a limited number of the machines tested requiring replacement. Laptops that are mounted in vans—including those that leave the vehicles occasionally—are generally rugged. Itronix’s GoBook is an example of this kind of device.

With all the considerations that go into purchasing these devices, Kasznay emphasizes the importance of getting various people involved in the decision-making process. Do you bring the field workers themselves into the discussion? “Of course—you have to,” he says. “It’s a requirement. You need to have the buy-in of everyone, especially them.” Kasznay says that the utility brings in various vendors to show their devices, and field service workers actually “drag them outside in the sun or in

the cold or whatever is necessary. Usually we give [the computers] to somebody to beat on for a couple days.” Similarly, on the software end, iAnywhere’s Paola notes that applications need to be designed for the end user, who may not be computer-savvy.

#### **Which Communications Platform(s)?**

Wireless platforms are improving, but they remain an imperfect communications medium—one reason why many utilities use more than one platform. Consequently, field service computers must be able to operate in what Gerber calls a “network diverse environment.” Some utilities, for example, might use a combination of local area network, wide area network, and even satellite. Northeast Utilities, for example, mainly uses CDPD (cellular digital packet data, a data transmission technology developed for use on cellular phone frequencies), but it also transmits data via a private Ericsson EDACS system, and is even using satellite on a somewhat experimental basis.

A consideration in purchasing the computers, then, is how flexible they are in operating on various networks. Gerber says that Itronix sells computers and software that even allow the computer to roam across various networks, providing optimal coverage. The number of available platforms is only growing. GSM (global system for mobile communications, another cellular system) is a reality. And then there is the newer GPRS (general packet radio service), which runs at speeds of 115 kilobits per second compared to GSM’s 9.6 kilobits per second.

Here in the United States, such systems lag far behind Europe, where GSM is already the standard and GPRS is the next frontier. “In the United States, the fragmentation of wireless standards has inhibited some

customers from adopting just because they don’t know whether a solution that they buy for Point A will work in Point B because we’re so split up,” says practice director Warren Wilson of Summit Strategies. That’s different in Europe, he says, where standards are uniform.

Still, concerns abound about the possibility of a device becoming obsolete because of communications platform advances. But according to Gerber, Itronix devices can be upgraded—for GPRS capability, for instance.

#### **Now and Beyond**

What else is down the road for mobile field service applications? Global positioning systems, which allow a dispatcher to locate workers, could be ideal for emergency situations when a nearby crew is needed quickly. While the technology is being deployed in other industries, Gerber says that utilities are just beginning to consider such capabilities.

For now, though, the payoff is immediate. Kasznay says that the computers pay for themselves, and not only in efficiency. “In our mapping application, just in things like paper, it’s amazing how much we’ve saved,” he says. “And that’s just the physical benefits, not even the soft benefits. The environmental application has redefined the business process of how [the environmental tracking] is handled. The same with the dispatching street lighting application and the substation inspection.

“The key to all this stuff is that the business process changes. You can’t just plug in a box and expect it to save a lot of money without changing the business process to take advantage of the technology.” ■

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