

It's a Bird! It's a Plane! No. It's an Expensive Pole Attachment

By Bill Johnson

Next time you ride down a street, look at the utility poles. Then, ask yourself: are they your poles, or do they belong to some other company? How can you tell? Can you see how many attachments are on the poles? Can you readily identify the attachments? Are the poles and the attachments up to National Electrical Safety Code (NESC) clearance and separation standards? What about those bothersome wind and ice loading requirements? If they're not up to snuff, can you tell who caused the infraction? And if you wanted to attach to a particular pole, could you easily figure out who the owner is? Or how to contact that owner?

Ah, the joys of an increasingly competitive communications environment.

Twenty or thirty years ago, when cable television was in its infancy, fiber cable was still in the laboratories, and competitive carriers were just a gleam in Judge Greene's eye,* the outside plant was a simpler place. Joint use agreements between the power companies and the telephone companies were written on a couple of pages, and were essentially a handshake agreement to share in the cost of a necessary expense. Build-outs were coordinated to maintain parity so little money changed hands.

Today, things are far different. Cable companies have proliferated and threaten telcos' very livelihoods. The boundary between telephone companies and cable companies has blurred to where it is sometimes hard to tell them apart. A few companies and municipalities have learned that their utility poles are an asset that can earn a market return. Other companies have decided that it is easier to pay rent to be on another company's poles rather than pay for the placement, maintenance, and administration of owning their own poles.

Years ago, utility poles held power at the top and a single telco cable on the bottom. Now they may have multiple attachments. In some cases, two or even three cable companies have attached to a pole. The telephone company may have copper cables along with a couple of fiber cables there as well. In the last few years, we have also seen an upswing in the use of utility poles as bases for Wi-Fi antennas.

What once was simple is now complex.

What does it all mean? What should a well-managed company (telco, power, cable, or municipality) do to manage the least sexy of all its assets: its poles? What if you only lease space on poles? Manage it! We are all great at managing work forces, customers, and facilities. We provide good service and we issue accurate bills on time. We fix things when they break. But, when it comes to poles, there are many un-managed opportunities.

The solution is to deploy an efficient way of managing joint use facilities. A joint use management program can help ensure maximum rental revenue to pole owners, minimize rental expense to tenants, and assist in regulatory compliance for all parties.

Pole Number	Carrier	Route	Location	Cost Center	Tenants
00000.3	NMSIP	BL_22B	...	NM	ALBQNMMA Attachments
00000.3	NMQO	BL_31A	...	NM	ALBQNMMA Attachments
00000.4	NMSIP	BL_31B	...	NM	ALBQNMMA Attachments
00000.4	NMSIP	BL_31A	...	NM	ALBQNMMA Attachments
00000.5	NMSIP	LA_11	...	NM	ALBQNMMA Attachments
00001	NMSAF	BL_20_8550	...	NM	ALBQNMMA Attachments
00001	NMQO	BL_35C1	...	NM	ALBQNMMA Attachments
00001	NMSAF	BL_2A	...	NM	ALBQNMMA Attachments
00001	NMSIP	BL_13A	...	NM	ALBQNMMA Attachments
00001	NMSIP	BL_45H	...	NM	ALBQNMMA Attachments
00001	NMSAF	BL_12D1	...	NM	ALBQNMMA Attachments
00001	NMSIP	BL_18A	...	NM	ALBQNMMA Attachments
00001	NMSIP	LA_37	...	NM	ALBQNMMA Attachments
00001	NMSIP	BL_43C	...	NM	ALBQNMMA Attachments
00001	NMSIP	LA_36	...	NM	ALBQNMMA Attachments
00001	NMQO	BL_18	...	NM	ALBQNMMA Attachments
00001	NMSIP	BL_45E	...	NM	ALBQNMMA Attachments
00001	NMSIP	LA_39	...	NM	ALBQNMMA Attachments
00001	NMSIP	BL_16_WOODWARD_SE	...	NM	ALBQNMMA Attachments
00001	NMSAF	BL_73A6	...	NM	ALBQNMMA Attachments
00001	NMSAF	BL_73A6A	...	NM	ALBQNMMA Attachments
00001	NMSIP	BL_37E1	...	NM	ALBQNMMA Attachments
00001	NMSIP	BL_43	...	NM	ALBQNMMA Attachments
00001	NMSAF	BL_73A5	...	NM	ALBQNMMA Attachments
00001	NMQO	BL_42B5	...	NM	ALBQNMMA Attachments

Figure 1. Listing of poles and attributes in a centralized system.

Trust But Verify

"Trust but verify" was a quote the late U.S. president, Ronald Reagan, was fond of saying, and it is applicable to the management of utility pole joint use agreements. We have all worked well with pole owners and pole tenants for decades. We don't need to change the *trust* part of the relationship. However, we all need to do a better job on the *verify* part of the agreement. Even if everyone is trying to do the right thing, it is not easy with today's systems. Data is tough to get out of the systems, even harder to get into the systems, and, in most cases, is not integrated with other asset tracking or accounting systems.

To get a feel for the scope of the problem, let's say that an Incumbent Local Exchange Carrier (ILEC) owns around 3 million poles and is attached to another 10 million poles. At an average rental rate of \$7 per year, that means that the revenue plus the expense results in over \$100 million in transactions *per year*. Yet, most companies do not have a single, centralized system for managing these transactions! These companies have either a hodge-podge system of spreadsheets kept in the districts, are attempting to use their geographic information system (GIS) programs as asset management tools, or have simply no system at all. None of these approaches maximizes your



Figure 2. Field collection software running on an Ultra-Mobile PC.

revenue while minimizing your expenses. These approaches also make regulatory compliance difficult to manage.

As is often the case, the right answer is not the easiest. The right answer is to establish a system that manages not only the poles, owned and non-owned, and the attachments, but also the agreements that you have with the other parties, and in an ideal case helps process invoices and bills between the parties. The hard part is to populate that system with accurate data. In most cases this involves importing any legacy data into a central database and then implementing an inspection program to correct and refine the data. Over time, the inspections and ability to update information quickly and easily results in an accurate representation of your poles and attachments. (See Figure 1)

The new system with accurate data allows you to reconcile invoices, provide billing data to your tenants, and allows a much more proactive approach to NESC violations and other maintenance and safety issues.

Just What Is a Joint Use Management System?

Three components of a successful Utility Pole Joint Use Management System are:

1. Data Repository
2. Field Collection Tool
3. Inventory Process

Let's take a look at each of these components in more detail.

• Data Repository

The data repository is a database of all the poles, attachments, lease rates, contacts, and locations. The ideal system is web-based and allows easy update and management of

the pole data and invoices. It also facilitates creating billing information for attachments to your poles, and facilitates the communication of permits and notifications, and make-ready charges between owners and tenants.

The data repository holds not only the poles that you own, but also those to which you are attached, as well. By cross-referencing your pole ID numbers with the tenant ID numbers, or using global positioning system (GPS) coordinates, you can always identify the owner of a pole, and you can improve the communication between you and the other parties.

The system should be web-based, allowing for easy access for authorized users. This means that technicians, managers, engineers, and finance folks can now all see the same data at the same time. The data repository should also run on an industry-standard database making implementation and maintenance easy for your IT staff.

Most companies use a GIS for their OSP design and engineering. Using a GIS, it is easy to see and maintain the plant configuration.

You could, theoretically, put your poles and attachments into the GIS. However, when you want to manage thousands of poles with their attachments at the same time, the GIS approach falls apart. They simply don't think about attachments as representing contractual relationships. It is more effective to use a dedicated system that is designed to manage the joint use aspects of your poles and attachments.

Additional benefits can be gained by linking your joint use system to your GIS, accounts payable, and accounts receivable systems.

Once you have a system that can effectively manage your poles and attachments, you are ready to do an effective job of reconciling invoices. Employing a joint use management system allows you to do a real-time reconciliation of an invoice for the first time. You no longer have to do a full-blown audit of large numbers of bills to determine if the invoice is correct. You upload the invoice into the system and let it compare the poles, attachments, and even the contract rate, to the data. You can pay the parts of the bill that are correct and dispute the rest.

• Field Collection Tool

A field collection tool is a portable tool that allows efficient inventories of poles and attachments, including documenting faults, obtaining digital photographs of poles and attachments, and recording GPS coordinates.

The field collection tool is used by technicians to perform physical inventories of poles and attachments. The tool, typically a PDA or tablet PC, receives data from the central data repository.

ry and allows field inventory technicians to find the pole, view the current information, and make any needed changes. Recently, Ultra-Mobile PCs (UMPC) have become available. (See Figure 2) They sport large screens, but are light and inexpensive, providing the benefits of a tablet at the cost of a PDA. The result is more efficient and less-error-prone field inventory.

Once the inventory is complete, the tool should automatically upload the updates to the central repository. This allows managers to monitor daily progress of a field inventory as well as provide all users of the system with current, accurate data.

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During the inventory, it is essential that the tool provide data entry validation in the field. Nothing is worse than getting a bunch of data from the field that lacks the critical data elements. At a minimum, the data should include: GPS location, pole ID and specifications, attachments including height and type, NESC safety faults, inspection date, and inspector ID.

• Inventory Process

The inventory process is a program whereby every pole and attachment is reviewed on at least an 8-year cycle. The reviews identify non-documented attachments, NESC violations, retired poles, and other information, such as the need for transfer.

The primary mission of the inventory process is to recognize that change happens. Poles are replaced during storms, contractors attach drops, facilities are rearranged. In the real world, all of this can happen without your joint use manager becoming aware; that is, without their data being updated to reflect the changes. By understanding where the process is broken, you can take steps to fix it.

The three goals of the inventory process are:

1. **Get the data corrected.** All the billing and invoicing are dependent on accurate data.
2. **Identify any attachments** that have been made without proper authority. Once you know the *who* it is much easier to figure out and correct the *how*
3. **Provide as much information as possible** to other interested parties. By collecting digital pictures, GPS coordinates, and

documenting Maintenance-Safety exceptions, your inventory becomes a valuable resource to other groups.

Industry best practice is to inventory all of your poles on a 5-8 year cycle. This means that at a minimum, you have laid eyes on every one of your poles within the last 8 years. In practice, it is much easier to choose a percentage (usually by map grid) of poles to inventory each year than to wait for the inevitable dispute letter. Also, putting in place an ongoing plan, facilitates budgeting and administration. If you believe your company has many undocumented attachments or are continually dealing with disputes you will probably want to start with a big-bang inventory followed by a cyclical program of inspections.

The inventory starts with a download of existing data. Pertinent route maps and data from known attaching companies are gathered. Don’t forget to look at your contracts. In many cases you can share the cost of your inventory with attaching companies. This is really a win-win. You get your data updated, and the attaching company knows for sure that you are not over-billing.

We have found that it is most efficient to organize inventories by map grids. The geographic area is small enough to ensure a thorough job, yet big enough to keep an inventory tech busy for a whole day.

A morning meeting and safety briefing for all the inventory technicians gets the day started. It’s good to know where your team members are if you need assistance. Also, by coordinating each day, you are less likely to inventory the same set of poles.

Each inventory team member makes his way through the map grid pole by pole. Pole descriptive information is collected along with any attachments. Digital pictures are made of the attachments and any safety and maintenance exceptions.

At the end of the day, we find an Internet connection and upload the results to the data repository.

An effective inventory process collects accurate data, identifies unauthorized attachments, and becomes a valuable source of information to other groups within your company.

Maybe Not Superman, Yet...

The deployment of a joint use management system allows for immediate and future benefits:

• Improved Process and Management Oversight

By tightly managing the permit/notification process, you will probably increase revenues. Another benefit is an improvement in your ability to manage the loading on a particular pole. For example, let’s say that you have a fully loaded pole. A cable com-

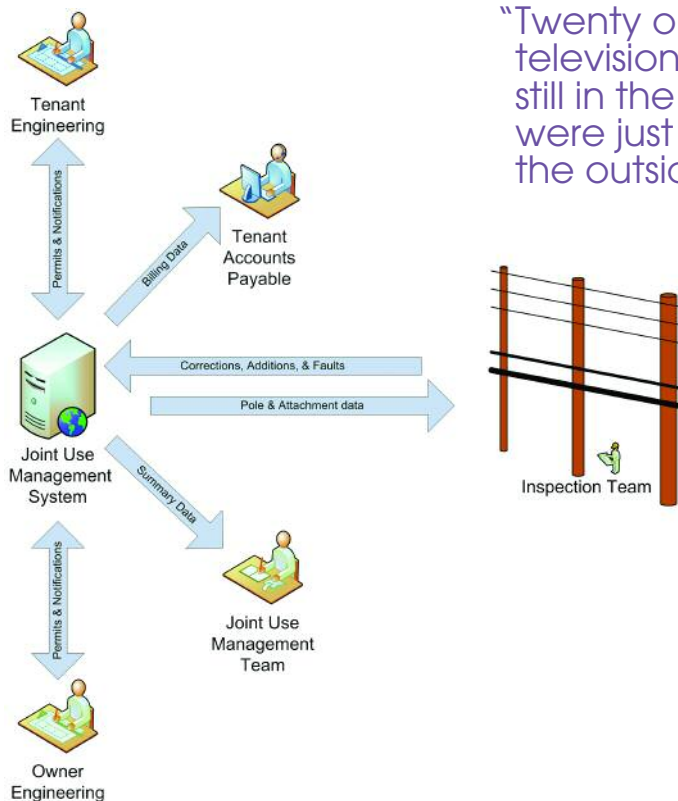


Figure 3. Joint Use System users and data exchange.

pany wants to attach to the pole. If you have a chance to review, you may very well determine that the current pole is at capacity and needs to be upgraded. You can pass this charge along to the cable company. However, if they attach now, and you figure out a year or two down the road that the pole is overloaded, you will have a hard time determining what is the culprit, and an even harder time recouping the expense of upgrading the pole from the problem maker. Cable companies would benefit from the faster permitting process.

• Action vs. Reaction

During an emergency (think hurricane), if a pole fails and needs to be replaced, an accurate database of all the attached entities is invaluable. For the first-responder (who may not be the pole owner) it is very helpful to be able to contact all the parties attached to a given pole to facilitate restoration.

While the wind is still blowing and the rain is coming down in sheets, it's not the time to whine about the cables not being marked with their owners. A joint use management system allows you to know who is attached to a given pole, how to contact them, and what sort of facilities are on the pole. It also allows accurate records to be kept during the emergency thereby cutting down on disagreements after the emergency.

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• Lower Maintenance Expenses

As you collect data regarding your attachments, you can also assess the condition of your wood poles. Physical inspection along with the use of devices such as the Resistograph and the POLUX can establish the remaining life of a pole. If deterioration is caught soon enough, a remediation treatment can be performed that will significantly extend the life of wood poles.

A by-product of the inspection program is the ability to perform statistical analysis of your wood structure life expectancy. Since the cost of replacing a pole is very large compared to the treatment cost, it makes sense to treat even if the life of the pole is only extended a few years.

By deploying a joint use management program that includes a centralized database, a field collection component, and a process for performing inventories, your asset tracking definitely becomes more effective. (See Figure 3) Sure, it may not make you Superman, but it can help increase revenues from tenants, reduce rental expenses, reduce pole maintenance expense, and improve your ability to meet regulatory requirements. With accurate data you will win, and your boss will *think* you are Superman!

* On January 1, 1984, AT&T, “Ma Bell” was broken up on the order of Judge Harold H. Greene of the U.S. District Court in Washington, D.C. For more information, visit www.consumeraffairs.com/news04/atf20.html.

Bill Johnson is a co-founder and President of Alden Systems. He invented the first tablet-based asset management tracking program, the first rules-based reconciliation system, and the first dedicated Ultra-Mobile Personal Computer (UMPC) based joint use inventory tool. Alden Systems provides joint use inventory systems, performs inventories, and provides plug-in tracking solutions. Bill can be reached at bill@aldensys.com. For more information, visit www.aldensys.com or email info@aldensys.com.

Additional websites for more information:

Resistograph: www.imlusa.com; POLUX: www.poleplus.com; NESO: [www.nesc/nescproducts.html](http://standards.ieee.org/nesc/nescproducts.html); UMPC: www.microsoft.com/windowsxp/ump.