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Towerco management in the age of digital transformation:
a novel approach that can future-proof your sites

Strategies for better managing your passive mobile infrastructure assets

Independent towercos, which privately own towers and related assets, are cropping up with increasing frequency. They are infrastructure landlords, providing the site and the site infrastructure to tenants. In a typical towerco deal a third party buys an existing tower from a mobile operator and leases it. Tenants usually include a mix of the original operator, other established players, and newer, small entrants who don't have the funds to roll out a new network of their own. Achieving specific tenancy ratios is integral to their business success.

Towercos are relatively new to the mobile and wireless industries, but are playing an increasingly important role in mobile rollouts. A huge number of mobile sites is required to support current 4G and 5G rollouts. An even larger number will be needed to support the future rollouts on the horizon. These sites are complex and need highly professional management of rollout planning, execution and ongoing operations.

As towercos expand their footprint in the industry, they need to fully understand what's required to manage tower sites and infrastructure. Digital transformation is forcing change and towers, like other businesses, must be prepared to adapt as needed. This preparedness means towercos must take a forward-looking view of the industry and put in place today the enabling technology that will allow them to accommodate new requirements of the

> The tower industry is a $300B infrastructure asset class. Management of its passive mobile infrastructure assets can make or break a towerco, which owns and manages tower sites and all the infrastructure on them.

future. This will be the key to longevity and profitability in a changing digital world.

A Properly Managed Tower Site Operates Like a Well-Oiled Machine

Towercos provide site and site infrastructure. While these go hand in hand, from an operational perspective it helps to look at them separately. Site management encompasses a broad range of activities, but all share the same basic principal of documentation.

The first activity is candidate selection. A lot of diverse information is collected as the towerco researches potential sites, such as search areas with site candidates, site property with site content and contacts. This real estate and facility documentation must be stored in a content management system, similar to how technical information about infrastructure assets and resources is documented. Storing

real estate and facility documentation in such a software system makes it actionable. For analysis and decision making, for environmental permit tracking, for ensuring planned milestones are hit, and for making sure regulatory restrictions are honored.

Once the site is selected, planning and rollout of site infrastructure assets occurs. These activities must be managed properly, and they require a well-structured process flow and coordination between all involved parties and subcontractors.

Once a site is operational, ongoing management of its assets and space become a top priority. Each site has many diverse assets to manage, including but not limited to generators, UPS, PDU, CRAC / CRAH air conditioning units, CCTV and access control devices, poles, rooftops, antennas, radio units, BBU equipment, routers and OTN devices. The only way to keep track and maintain functionality of tower assets is to know exactly what you have. That means documenting them in a comprehensive database and having processes to keep the data current at all times.

Towercos will also want to assign assets and equipment with associated information to specific tenants, and they'll want to link equipment to site and assign resources by tenant. This is extremely important as towers are multi-user and multi-tenant. These linkages and assignments should be documented in the database as well.

In terms of space, the towerco must know how many racks and cages its site supports, assign them to tenants, and know at any given time how much space is used versus what is available. Space usage diagrams are a beneficial tool for analyzing and reporting on used, free and reserved space, both in aggregate and by individual tenant. These are only available when there's an underlying database in which the detailed site-specific information is properly documented.

A common theme emerges when these different facets of tower site management are examined. All require a way to keep track of and make actionable specific information. Towercos can borrow principles from data center infrastructure management to address this need. Any DCIM tool relies on a database of documented assets in the facility to manage space, power, cooling and connectivity. What towercos need is a software system that expands this functionality to include all assets, resources and information, across all operational areas. Managing tower site information in such a unified way streamlines all processes. A key feature to look for in a management solution is therefore a single source of truth data repository that crosses operational boundaries.

A New Approach to Managing Tower Infrastructure
The ability of a towerco to deliver quality service while keeping costs low and customer satisfaction high is completely dependent on how it manages site infrastructure. The tower infrastructure is the convergence of many elements: the tower, edge small cells, fiber and power cabling and data center infrastructure. When you consider tower infrastructure from this perspective, it makes

sense to re-frame managing it to align with that of an edge data center.

Towers are becoming more prevalent because they are necessary for mobile edge computing. Service providers need to get their customers closer to their network to deliver a better experience. Towers are a link in the chain from core data center to edge data center to, ultimately, end users. As such, they have similar needs as edge data centers in terms of capacity, connectivity and redundancy, as well as space, power and cooling. In this context, it's valid to use edge data center infrastructure management best practices as a reference for tower infrastructure management.

At the heart of both should be DCIM capabilities, enhanced with cable and telecommunication resource management. This approach is the best way for towercos to future-proof their towers. As more and more service providers push the boundaries of their networks, only towers equipped with the right foundation will be positioned to play a role.

The Tower-Data Center Link
Traditionally, DCIM is not a topic of conversation among towercos. But every tower and rooftop need sufficient power, cooling and space to operate. These are the fundamentals of DCIM. FNT Command software has DCIM functionality that makes it possible to efficiently manage the space, power and temperature of towers, similarly to how it manages those elements in a data center.

All tower assets and resources are documented in FNT Command's central data repository, which feeds the software's management system. Users can then view the tower's as-is space usage in various graphical representations and see at a glance what is used, what is committed and what is available. Similarly, since power cabling and circuit breakers are also documented in Command's database, towercos have information about provisioned versus consumed power and power capacity readily available. Command also provides the ability to monitor power consumption per tenant, which is key input to pricing discussions and ensuring SLAs are met. Temperature rounds out the DCIM discussion. FNT Command monitors site environmentals to control cooling, heat emission and cooling capacity. In terms of temperature management, the only difference between towers and data centers is that towers sites are smaller and cooling needs are limited.

The Tower-Edge Data Center Link
Towers house critical edge resources. These RAN resources at the site must be linked to fronthaul and backhaul connectivity data, configuration data for mobile RAN resources, and operations from mobile RAN to core network. A tower's cabling and connectivity infrastructure must be capable of handling these data flows.

For a tower to operate it must have physical and logical network inventory to manage site infrastructure such as power and cabling, but also antenna, BBUs, RRUs,

routers and OTN devices. From a mobile operations perspective logical connectivity management is needed both in the fronthaul and backhaul portion of the network. Configuration data must also be managed, i.e. parameters of antenna, parameters of BBUs, RRUs, cells. Towercos can take over these types of tasks from their mobile operator tenants, such as RAN configuration management, RAN operations, RAN spare part and repair. In so doing, they help their operator tenants get closer to their users, regardless of where they are or how distant from the core network.

In today's new mobile RAN architectures the previous long coaxial cable runs are being replaced with fiber optic accompanied by power cables to provide power to the equipment at the tower or rooftop. Cabling is the foundation for the FTTA (Fiber to the Antenna) and C-RAN architecture of towers and is the backbone of tower tenants' connectivity requests. The FTTA approach used with C-RAN architecture requires enhanced fiber management functionalities to plan, rollout, and operate mobile sites.

Towercos need to connect cable at the site and equipment such as routers and OTN devices with the networks of different operators. Cable management will be a constantly increasing challenge because more technologies are being deployed and operator site sharing makes cellular sites more crowded. In addition, dozens of fiber optic and power cables will be running on the sites, increasing the risk of cable damage and the complexity to assure diverse routing requirements.

As with edge data centers, redundancy is mandatory and must be managed on both the logical and fiber layers. FNT Command manages tower resources from C-RAN / FTTA down to mobile core, and it manages all connections between all network resources, regardless of where they reside. The importance of this capability cannot be overstated.

Operationalizing Tower Infrastructure

The real benefit of a solution like FNT is that it provides a rock-solid foundation on which all other processes can reliably run. For instance, it supports workflow process management from work order creation to management of field forces and sub-contractors. In planning mode, the work orders required to fulfill planned new connectivity or rollout new assets are automatically created and can be forwarded to the field force team or subcontractor to execute. Workflow capabilities support the structured execution of the defined processes. This is just one example of how a towerco can use FNT to plan and manage different tenant requests efficiently.

This capability takes on greater importance when you consider that a towerco can manage thousands of sites, with different tenants at each site. Different tenants will ask for various products and services. FNT makes it possible to manage a product and service catalog consisting of different bundles, i.e. space, power, connectivity, remote hand service. Such a catalog manages the packages sold to the different tenants efficiently. It provides full transparency of all services offered to tenants inclusive of assigned resources, cost and price over the entire service lifecycle.

This catalog-driven approach establishes an efficient, standardized and scalable service delivery chain. The benefit this affords towercos is an online product and service catalog to present to tenants to self-select the services they want, which is in line with how much of business is done in today's digital world. Additionally, because such a catalog has modularized components on the back end, it leads to a structured, accelerated and much improved sales and offer process. Given the large volume of tenants a towerco serves, this automation of service delivery is necessary for the commercialization of its various products.

Deploying the Right Solution Matters

Many solutions on the market today can perform some of the functions towercos need. Very few can perform them all. FNT Command stands apart from other solutions because of the breadth of capabilities it offers. These capabilities stem from its central data repository. This verified as-is inventory of all tower and site resources and connections supports site infrastructure, asset and equipment management, and feeds a management system that enables towercos to efficiently manage their fiber and power cables, tower, pole, power assets, antenna, RRU, BBU, routers and OTN devices.

It also supports tower infrastructure operation and maintenance, which is crucial for avoiding unscheduled downtime. Equipment checks and preventative maintenance schedules ensure infrastructure performance. FNT Command makes regular maintenance easy and efficient by supporting planning of maintenance windows. It delivers an immediate analysis of the impact caused by the planned maintenance activity, so the towerco can take preventative measures to re-route services and avoid unnecessary downtime.

It works similarly in case of a failure of either cabling or equipment. FNT Command identifies what services run over the affected equipment, what connected nodes are affected by the outage, and which tenants are without service. Armed with this information the towerco can quickly determine the best way to solve the issue, which is usually re- routing while the downed equipment is repaired. In both scenarios, FNT Command is instrumental in minimizing the revenue loss from downtime periods.

Conclusion

In the era of professional infrastructure sharing, towercos can drive profitability by focusing on site management and site infrastructure to increase tenancy ratios, improve operational and energy efficiency, and standardize and accelerate 4/5G rollouts. They need both a sound infrastructure and tools to manage tower resources and processes to support these activities. FNT Command provides both. It offers towercos a full range of capabilities to plan, operate and manage mobile sites and the infrastructure resources they need to function for both existing networks and technology, and those in the future 5G and beyond world.

For more informationvisit us at:
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