



## WHITE PAPER

# Infrastructure Verification as a Service

A Standardized Approach to Infrastructure Documentation and Management

## Executive Summary

This White Paper details the methodology of an ICT Infrastructure Verification as a Service (IVaaS) solution, and how it can increase organizational efficiencies for government, hospital, corporate, and educational campuses, in addition to organizations with multiple locations, by reducing the frustrations and costs associated with limited, inaccurate, or nonexistent telecommunications infrastructure documentation.



# Infrastructure Verification as a Service

## A Standardized Approach to Infrastructure Documentation and Management

An Information and Communications Technology (ICT) infrastructure, when broken into its most foundational elemental parts, is represented by spaces and pathways – such as telecommunications closets and conduit – and the contents, or inventories, of those spaces and pathways – such as equipment and cabling.

As with all inventories, it is necessary to the success of both immediate maintenance and long-term future planning, that an ICT infrastructure's space and pathway inventories are thoroughly and accurately documented, and that the documentation is amended in accordance with all MACs (moves-adds-changes) as they are performed.

However, the historical trend in ICT has been more of a "set it and forget it" approach: MACs are performed, such as the retirement or relocation of telecommunications closets and installation of new cabling, but the infrastructure changes go undocumented.

"Commitment to cable management is a full-time job."

–Mark Pohl, LAX,  
Los Angeles World Airports

These changes, compounding over time, invariably lead to a large number of "unknowns", which can thrust the end user into risk situations ranging in severity from not knowing where a cable run terminates, to difficulty in future design-builds or building demolitions, to the complete inability to efficiently resolve an outage.

In the case of large campus facilities or organizations with multiple locations, legacy infrastructure tends to create a tangle of frustration and wastefulness.

The infrastructures were laid many decades ago without a hyper-connected future in mind. Pathways are often unknown and upgrades implemented in a haphazard fashion, leaving existing pathways congested with abandoned cabling and newer cabling not being utilized to its full potential. Without accurate information that shows the existing, usable facilities and available capacity, decision makers have no choice but to bring in technicians to conduct repeat surveys before every new install.

With continuous advances in technology, we now see enterprises abandoning the archaic practice of housing data in the same seat as the work being performed – that is to say, data centers are the storage and operational devices of today, not workstation hard drives or local servers.

This means that constant, uninterrupted access to and communication with the cloud is more important than ever before, and is becoming even more critical every day. Connectivity interruptions or outages can result in not only loss of productivity, but the loss of major revenue.

In order to ensure accurate and efficient project planning, from activities as simple as running a new cable, to complex design-builds and demo projects, and to ensure continued, uninterrupted access to the cloud, it is imperative that the ICT infrastructure that supports that connectivity is accurately documented and maintained for the lifespan of the site.

# The Industry



The various standards associations of the ICT industry provide cabling, grounding, bonding, firestopping, and CAD standardized best practices which have largely been adopted by contractors, project planners, and management teams, but there has never been a standardized approach to infrastructure documentation and maintenance.

This oversight has left room for innumerable management approaches from end users and contractors alike. Ranging from no documentation at all to the application and inconsistent use of costly software solutions, organizations struggle to maintain accurate documentation of their critical infrastructure.

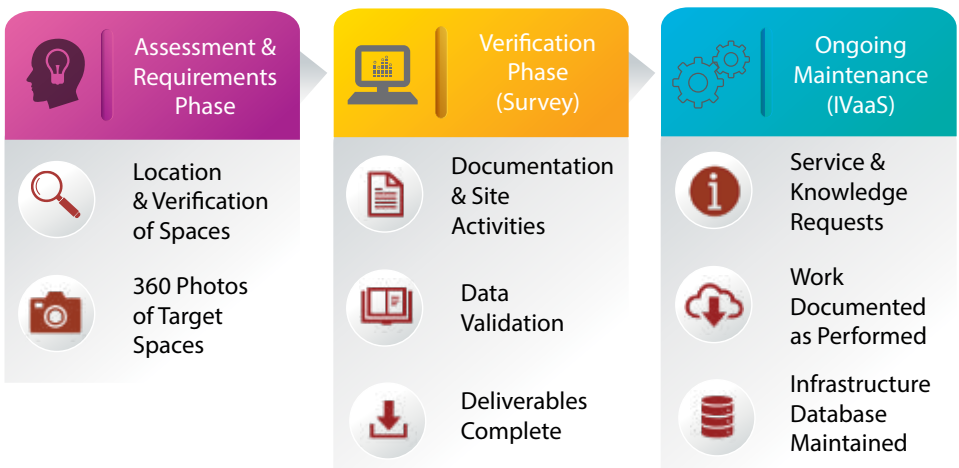
In an effort to offer a standardized approach to comprehensive ICT infrastructure documentation and maintenance, Concert Technologies has developed a methodology which, when applied in a series of defined phases, ensures a consistent approach to

infrastructure documentation. The result is an accurate and reliable dataset that becomes the foundation for the infrastructure's ongoing maintenance.

Recognizing that no two campus environments are alike, the modular design of VeriStructure is fully customizable for complex, distributed infrastructures, regardless of whether the campus is comprised of multiple collocated buildings or an array of buildings spread nationwide.

Each phase of the program retains the primary structure and overarching authority encouraged by ICT project management best practices and is the key to attaining and continuing documentation integrity. Each phase of the methodology is designed to produce and maintain the dataset necessary to perform the subsequent phase, regardless of when the new phase is initiated.

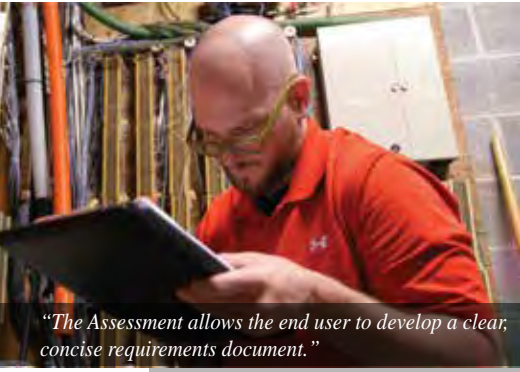
## IVaaS Process Structure



# The Assessment



The Infrastructure Verification as a Service (IVaaS) program kicks off with the addition of a new type of project phase, which represents a true paradigm shift in industry approach away from the historical practice of performing a single site survey prior to project execution to the addition of a smaller first step: a site Assessment.



*“The Assessment allows the end user to develop a clear, concise requirements document.”*

The Assessment allows for the development of a measured approach to the site survey.

By establishing the needs of the site at an early stage, the Assessment creates a clear, concise requirements document, with very little or no gray area, giving contractors precise parameters and a better understanding of the scope of the project.

The Assessment is all about low-level data collection: identification of site and space access requirements, location and identification of ISP and OSP (Inside Plant and Outside Plant) telecommunications spaces, 360° photo-documentation of each space, and recording of basic observational information about each space.

Collection of this data allows for the more intensive survey process to be effectively planned and executed.

Whereas the historical single-survey approach often results in spaces being passed over due to access restrictions or general inaccessibility, performing an Assessment at the forefront of the project not only allows for proper planning for the “deep-dive” survey, but also gives all site spaces a second chance at being surveyed if access parameters cannot be met on the first pass.

Additionally, its ease of application means that nearly anyone can perform an Assessment; unlike site surveys, which require teams of personnel who are confined space and specialized equipment certified (in cases of sites with OSP), and often at greater expense to the contractor and end user, the Assessment can be performed with as little as one on-site person (site size and project schedule dependent) capable of performing simple tasks such as navigating site plans and taking 360° photos, and one back-office person directing the effort.

The addition of the Assessment at the forefront of the project constitutes more of a “heads-up” approach to the survey process; this approach takes a great deal of pressure off the survey by developing a snapshot of the site up-front, which allows for proper planning and preparation for the subsequent phases.

The Assessment has the potential to perform as a standalone offering; in the event that the end user wishes only to establish an infrastructure overview, or acquire enough data to write an effective Request for Proposal (RFP), the Assessment can be performed independently of the other IVaaS phases, allowing for the end user to develop what is needed, without the pressure of further commitment.

# The Survey

Site surveys are a staple of the ICT industry; program/project managers of government, educational, healthcare, and corporate facilities expect to undergo numerous surveys and contractors have extensive experience performing them.

Unfortunately, overall survey accuracy, specifically the accuracy of the documentation that is produced from the survey, is typically highly questionable, costly, and time consuming to quality assure.

The IVaaS approach to surveying, however, sets it apart from industry-typical surveys through its universally-applicable, standardized methodology, which serves to provide both consistency of approach, as well as accuracy in output.

*"The key, I believe, is to have someone 'own' the responsibility of keeping documentation updated."*

–Cindy Monstream  
RCDD, Director of Technology  
Support & Training, Legrand N.A.

The IVaaS Survey follows specific protocol in all areas, which dictate proper execution of a range of activities from cable labeling, to OSP survey requirements, to template-driven data collection, all managed and directed from the IVaaS Center, or "back office".

Unlike the Assessment, the Survey is geared toward contractor execution, due to its call for qualified personnel, experienced in both ISP and OSP surveying activities.

Following the execution of an IVaaS Survey, all telecommunications spaces and pathways at the site have been located and identified, contents have been recorded, cables have been traced and labeled throughout ISP and OSP, and all resultant data has been transferred once again to the IVaaS Center, or for processing into deliverables.

# Ongoing Maintenance

Historically, it is accepted that surveys are performed over and over: if there is a requirement for any ICT-related activity, from something as simple as extending a new circuit, to major construction or demolition at a site, the end user contracts a survey. If a period of time has passed since the last survey, and a series of undocumented MACs have made the ICT infrastructure unrecognizable, the end user contracts a survey.

The industry sees repeat surveys performed with such regularity that surveys themselves are often seen as the solution, when, in reality, the results of the typical survey are only valid until the next MAC, at which point they become obsolete.



*"Resultant data from the precisely-conducted Survey is used to establish the end user's Infrastructure Baseline."*

IVaaS takes a different approach: the IVaaS Solution dictates that surveys should be performed as seldom as possible, and, ideally, only once inside an IVaaS application.

As part of the IVaaS Solution, the resultant data from the precisely-conducted Survey is used to establish the end user's Infrastructure Baseline, which then becomes a new starting point for the infrastructure, allowing for data to be updated as MACs are performed, rather than requiring fresh surveys over, and over again.



The Infrastructure Baseline is captured and recorded by the IVaaS Center (the “back office”), which works to manage its continued accuracy and integrity by documenting infrastructure changes as they are performed, and recording those changes in the Infrastructure Database.

“Having accurate documentation for service work allows us to significantly reduce our time on site.”

–Alberto Luna,  
BICSI Installer of the Year

With the Baseline established, and the Database maintained as the repository of the total infrastructure data, the end user is able to obtain space, pathway, and inventory-specific information from the IVaaS Center – down to that granular level of where a cable goes, or what pairs or strands are available for use – by simply submitting requests directly to the specialists who manage their data.



“360° Photos give the end users detailed documentation of critical pathways and spaces.”



Engineers, Program/Project Managers, and C-Level tech execs face many challenges when implementing in-house solutions to the documentation of their infrastructures, such as over-committed personnel and departments, tight budget constraints, legacy infrastructure issues, succession of new personnel, and contract transitions.

These challenges can quickly push other tasks, like managing day-to-day infrastructure issues, to the bottom of the to-do list.



“The end user is able to obtain space, pathway, and inventory specific information from the IVaaS center.”

IVaaS is designed to address these challenges and achieve a comprehensive, managed, ICT infrastructure database for distributed infrastructures, allowing for efficient administration of infrastructure assets, decreased response time against outages, and ease of planning for future upgrades and expansions.

The table on the following page highlights the benefits of an IVaaS solution when applied to the life-cycle of campus and multi-site environments.

## Campus & Multi-Site Facility Issues

### Surveys, Surveys, & More Surveys

Need surveys prior to performing work, regardless of size and scope, resulting in increased costs.

### Disaster Strikes

Lack of accurate documentation can keep outage resolution, and disaster recovery, from being executed quickly and efficiently.

### Longer Site Visits

Field techs take a long time performing survey, getting access into spaces, and completing work order.

### Limited Work Status Updates

You don't hear from the tech on how the job is progressing.

### Lengthy Planning Cycles

Inadequate information for future network infrastructure planning.

## IVaaS Solution

### Eliminates Future Surveys

A dedicated Personal Verification Specialist (PVS) provides requested documentation from IVaaS Center.

### Significantly Reduces Engagement

Accurate infrastructure documentation helps to pinpoint the root cause and promotes faster response time.

### Reduces Tech Time on Site

PVS coordinates and manages work from start to finish. Database updated upon completion.

### Instant Online Access

24/7 Portal access provides status updates of all work. Email alerts upon task completions.

### Simplified Transitions

PVS promptly provides up-to-date, actionable data after Knowledge Requests are submitted.

## Conclusion

By implementing an IVaaS Solution, campus environments can avoid the headaches inherent in an undocumented, or inadequately-documented infrastructure, such as having to contract repeat surveys to locate infrastructure elements, dealing with long site visits and lengthy planning cycles due

to insufficient information, and suffering difficult-to-resolve outages. An IVaaS Solution manages these issues through an accurately-documented and maintained infrastructure, and personnel dedicated specifically to its management.



# VeriStructure™

VERIFIED. DOCUMENTED. MAINTAINED.

A Program of Concert Technologies



## Survey & Documentation

VeriStructure delivers a clear solution to the complex challenges of building and maintaining accurate, actionable infrastructure documentation.



## Verification

Plan your future projects with confidence: VeriStructure delivers insights into your site design, layout, functionality, and capacity.



## Ongoing Maintenance

Ensure the continued life and stability of your communications infrastructure with VeriStructure's Ongoing Maintenance component.



## Consultancy Services

Understand exactly what custom infrastructure solutions fit your business needs with our wide range of consulting services.