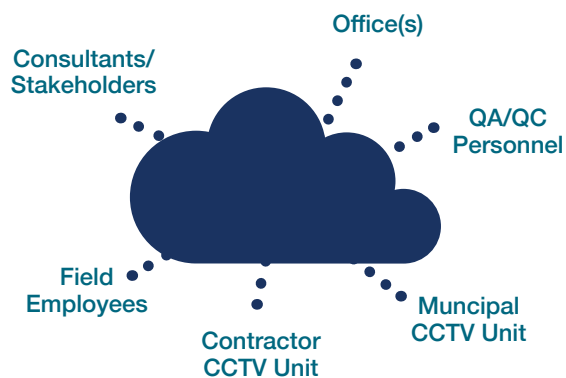# TECH TIPS
FROM NASSCO

SEWER INSPECTIONS – UNDERGROUND IN THE CLOUD

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Whether we recognize it or not, cloud computing has already significantly impacted and changed our lives. At home, we text each other using iMessage, shop on Amazon, or watch shows on Netflix. In the office, we send large files via DropBox or Google Drive, and enter information into our Asset Management Systems.

While cloud platforms offer many advantages, perhaps the biggest advantage is their ability to access inspection data anytime, anywhere, and on any device. Never has this been more important than during the last year and a half. With many employees still working from home or in dispersed offices, the ability to share and access data quickly has become a necessity for companies.

With a cloud-based platform, field operators can upload their videos and data from the field, office, or even a hotel. Within minutes, anyone with a login and internet connection can begin the review process. For municipal agencies, this reviewed data can then automatically sync with an Asset Management program or GIS. For contractors, ITpipes, as well as many other NASSCO software vendors, offer the ability to provide read-only licenses to clients, allowing them to deliver the data to their clients instantly. This means no more mailing flash drives, printing reports, or delivering portable hard drives.

Consultants/
Stakeholders
Office(s)
QA/QC Personnel
Field Employees
Contractor CCTV Unit
Muncipal CCTV Unit

What is "The Cloud"?
Cloud computing means computing on a network of servers that are accessible through a network connection to store, manage, and process data. Essentially, cloud computing is a generic term for anything that involves delivering services over the Internet. These cloud services can be divided into three categories:

- **Software-as-a-Service (SaaS):** This is a software subscription, but it does not involve managing any of the infrastructure. Common examples include Google's G-Suite and Netflix.

- **Platform-as-a-Service (PaaS):** This would be one of your customized applications that is supported by the cloud provider. Here, the provider sets up your database at their chosen data center and manages all required maintenance, backups of that specific database, and more. Common examples of this would be Esri ArcGIS Online and ITpipes' Cloud.

- **Infrastructure-as-a-Service (IaaS):** This type of service gives the organization complete control of their environment in the Cloud. This means all your computing power, storage, networks, etc. will be hosted in the Cloud, with the IT admin maintaining control over how the cloud-based infrastructure is managed. Examples of this are Amazon AWS and Microsoft Azure.

Cloud Concerns
Despite its vast presence and use, cloud computing is often a touchy subject within our industry, with many organizations still preferring to store their data, including pipe inspection data, on premise. In a recent ITpipes survey of pipeline inspection contractors and municipal agency clients, users were asked "Why haven't you switched to cloud computing for your sewer inspection data?"

The most common answers were: 1) Security Concerns 2) Control Concerns 3) General Unfamiliarity and 4) Cost. As a direct result of the pandemic, the switch to the cloud is coming faster than we could have imagined. Larger, vital providers like GIS-market-leaders Esri, and asset management providers like Cityworks and Cartegraph are also moving more to cloud PaaS and SaaS. The good news is there is no need to be afraid. Let's briefly address the common concerns cited in the survey:

- **SECURITY:** Yes, it is possible for on premise data security to meet or even exceed the security standards of a properly set-up cloud platform. For most contractors or municipal agencies, implementing the necessary security measures on premises will be extremely costly, making it impractical. For larger municipalities or national pipe inspection contractors, they perhaps can justify multiple offices, a 24/7 security team, and a large IT budget. However, for the vast majority of organizations that don't fall into those categories, cloud-based options will likely be more secure than on premise options. It is important to note that most pipe inspection software vendors in our industry do not host their data on servers in their office. Instead, they're using a third-party IaaS, like Amazon Web Services (AWS) or Microsoft Azure, which boasts arguably the best security in the industry when properly set up by the inspection software provider.

- **CONTROL:** With the majority of pipe inspection software providers, you own your data. At any time during an active subscription period, and usually for a predetermined timed afterward, clients can download all their inspection data and related media files. When entering into any sort of SaaS or PaaS agreement, do your due diligence to verify you will own all your data and have easy access to obtain those records.

- **COST:** Cloud services eliminate the large capital investments required for hardware and servers by providing exactly the resources clients need, when they are needed. This also minimizes initial and ongoing IT resource needs for management of hardware servers and related services. This makes it a great option, especially for smaller contractors and cities that don't employ a full time IT department to manage server operations. Additionally, cloud services allow storage and usage to expand as you grow, allowing for a much smaller initial investment. Finally, it's much cheaper and easier to set up new employees, which can be a huge advantage for organizations with heavy turnover.

- **GENERAL UNFAMILIARITY:** Over the past decade, "the cloud" has been thrown around as a buzzword, often in various scenarios, creating a lot of confusion. Luckily, you don't have to be an expert to use or understand cloud services. All NASSCO member inspection software vendors are well-versed and more than happy to answer questions, perform demonstrations, and walk you through the process. With many contractors and municipalities in our industry already on cloud platforms, you don't have to worry about being a pioneer or taking unnecessary risks. All vendors will happily provide you references of similar organizations of comparable size and/or run related applications, allowing you to reach out and hear first-hand experiences.

Of course, every organization is unique. But once you experience your pipe inspection data going from the manhole to the cloud and experience the benefits, you will wonder why you didn't switch sooner. For a full list of NASSCO-certified software, please visit **nassco.org**.

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