Q&A FROM CPUC UTILITY POLE & CONDUIT WORKSHOP

1. Michael Picker, President, California Public Utilities Commission – *Has Alden had any experience with visual recognition software to automate field compliance (i.e. photography, LIDAR, Drones)?*
   - **Alden Response**: Alden has not performed any projects using Drones or LIDAR. Alden has used the photo verification software, but saw limitations in testing. Alden will continue to investigate and test this technology as it continues to advance in the market space.

2. Miles Bower, Cox Communication – *What is the typical process to getting all the poles and conduit information into Notify™? Is it companies porting into the database or just providing you a list?*
   - **Alden Response**: During the implementation phase, Alden takes a data file from each company and uploads the data to Notify™. Notify™ keeps the legacy systems current via a standardized web service API. Batch updates can be auto-scheduled daily, weekly, or monthly. The website also allows authorized users to load their own pole, attachment, and conduit data.

3. *Chris Witteman, Staff Counsel, Telecommunications & Advisory, California Public Utilities Commission*
   - *Is Alden's Notify™ Software a true Asset Tracking, Asset Repository, and Asset Work Management System?*
     - **Alden Response**: Yes, Notify™ is an asset management system that includes the ability to communicate and perform work management on individual assets or a selected group of assets. Notify™ can manage all aspects of poles, conduit and towers (including Contract Management and Billing).

   - *Does Notify™ perform pole loading calculations or is pole loading still in development.*
     - **Alden Response**: While Notify™ is not a pole loading software application, it is Alden's recommendation that the committee select one pole loading software application that can directly interface with Notify™. All data inputs will be entered and stored in Notify™ for every new Permit to Attach request, Over-lash request, and any other instance where pole loading calculations are required.

   - *In the shoes of a competitive carrier that wanted to see what and all routes that are available; are there any states in which you work where that information is available to competitors; and what would it take from a technical and legal to get to that place to where that data is available to competitive carriers.*
     - **Alden Response**: For the asset attributes (location, etc.) that the pole, conduit, and tower owners are willing or regulated to share, Notify™ allows attachers to see all routes for deployments while providing the necessary details of those poles to attach to. Alden sees a tremendous opportunity to automate calculation of available routes for competitive carries to compare. This will accelerate speed to market while increasing transparency to the CPUC. Finally, having all the data and history in one Central Asset Database provides significant efficiencies in data tracking and planning.

4. Michael Morris, Commissions Division, California Public Utilities Commission – *Has Alden had any experience with smart poles and can Alden provide any information around this technology?*
   o **Alden Response**: Smart Poles will require three technology components to become a reality: (1) sensors to measure relevant data (tilt, moisture, etc.), (2) a communication network to transport the data to a central asset repository, and (3) software like Notify™ to make sense of the data and act on it. The sensor technologies exist or will shortly and are cost effective to produce. Transport of the data will likely occur over a network built for another purpose (smart grid, public Wi-Fi) or a future, sensor-based mesh network. The economics of constructing the communication network is likely to be the determining factor as to when smart poles will become a practical option. Finally, software like Notify™, to drive from data to decisions, will be required to realize the benefits.

5. Jesus Roman, Assistant General Counsel, Verizon
   o *What is the security level of Notify™? What security steps is Alden taking to ensure that Notify™ is impenetrable to cyber-attacks?*
      ▪ **Alden Response**: Here at Alden, we employ defense in depth. Rather than relying on a single piece of technology to protect our systems, we apply security best practices to all layers in our technology stack.

      We are very aware of the multitude of threats that an application faces today. We have designed our systems in an effort that provides adequate mitigations against the top OWASP vulnerabilities. We continuously review new attack measures that are discovered in the industry and analyze any vectors that may apply to our software. We employ daily code reviews to ensure that no vulnerabilities are introduced into our systems. We also perform regular in-house penetration testing to discover and squash vulnerabilities before our systems are published to production.

      Our datacenter provider, Peak 10, works with BrightLine CPA & Associates, an independent third-party auditor, to produce its SOC reports. For SOC 1 reports, Peak 10 defines its objectives as physical security, infrastructure and change management, network and cloud hosting operations, logical security, support organization, and provisioning. For SOC 2 and SOC 3 reports, they are assessed for security and availability, which are among the core principles of their business. Peak 10 also chooses to perform the more rigorous Type 2 report, and includes 12 months of history instead of the minimum of six. In addition, Peak 10 updates its SOC reports every year, meaning that there are never any gaps between reports. Peak 10 insists on providing us with this level of SOC compliance in order to show they are serious about protecting us and our data.

      Here is a sample of vulnerabilities that we have advanced protections against:

      • Injection: through the use of technology that we employ, we have advanced protections against SQL-injection attacks.

      • Broken Authentication and Session Management: We utilize the OAuth 2.0 protocol for authentication and authorization. We leverage this technology to help mitigate attacks that would compromise passwords, security tokens, and session keys.

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- Cross-Site Scripting: we utilize front-end web technologies that make it very difficult to employ an XSS attack. We simply do not send data to a web browser without properly validating, encoding, and escaping the data.

- Sensitive Data Exposure: We employ in-transit encryption of all traffic using TLS 1.2. When applicable, we store sensitive data encrypted while at rest. We employ strong password protection and lockout capabilities.

- Missing Function Level Access Control: We utilize role-based access control over a trusted sub-system pattern to prevent data leakage between parties. Access control is checked at every layer in our application.

- Cross-Site Request Forgery: our system is architected in a way that mitigates cross-site request forgery.

- Alden's Next Generation Firewall provides:
  - Real-time, multi-layered protection against sophisticated attacks. Including blended threats that originate from multiple sources, operate at multiple layers and utilize multiple protocols.
  - ICSA-certified gateway antivirus and anti-spyware protection. Combine network-based anti-malware with a cloud database of over 12 million malware signatures for deep security protection against advanced modern threats.
  - Cutting-edge Intrusion Preventions System. Protect against worms, Trojans, software vulnerabilities and other intrusions by scanning all network traffic for malicious or anomalous patterns.
  - Geo-IP filtering to block international threats.
  - Capture Advanced Threat Protection adds a layer of protection against unknown threats, such as zero-day attacks and ransomware. This solution is a multi-engine cloud-based sandbox that examines suspicious files and holds them at the gateway until verdict.

- Physical Security/Redundancy/Backups/Encryption:
  - Our platform is hosted in a high security data center. Physical access is only granted through 3 factor authentication, including biometrics.
  - We use continuous on-site backups at an image level, file level, and even table level for our databases. We also replicate our backups off site every hour.
  - Our servers have triple redundancy on site, and we host a co-location center we can bring online in the event of a major outage.
  - All of our productions sites have moved to full time encryption, using the latest 256bit cipher, and protected by up to date security certificates for SSL data transmission.

- *What type of background checks is Alden performing on its employees and are Alden's employee's clear (Homeland Security) to be working on this type of data?*
  - **Alden Response**: Alden performs comprehensive background checks on every employee before hire.

6. Lonny Saldivar, Compliance Management Team Lead, San Diego Gas & Electric Company – *Does Notify™ have any experience with line modeling software, such as pole loading software or PLSCAD? Do you see any short comings to where Notify™ could not integrate with this type of software? How would Notify™ integrate with pole loading software?*
   o **Alden Response**: Notify™ would serve as a repository for the pole information required to perform the pole loading calculation. As a new application for attachment is made, the information about the proposed attachment would be captured. This information would be combined with (stored) information about the pole and existing attachments and supplied to the pole loading software. The results of the calculations would then become part of the application's history and if the attachment is made, it would become part of the pole's data record and would be used in future pole loading calculations.

7. Jim Draugh(?), President Picker's Office, California Public Utilities Commission – *How can Notify™ assist with onboarding the regulatory committee and what type of training do you provide to the regulators? What resources do the regulators need in order to use your system?*
   o **Alden Response**: As a central asset database, Notify™ is hierarchical in its design. In addition to providing transparency and access to the utilities and third party attachers, Notify™ will give CPUC regulators 100% visibility into both the condition of assets and the progression of activity on them. The CPUC can query any data within the system (i.e. condition of poles, out of compliance poles, poles with complaints, permits that were denied, buddy poles, etc.). These reports and associated dashboards will be established during the implementation phase in consult with the CPUC. During implementation, Alden can provide on-site training to the regulators and follow up with web based, bi-weekly training to reinforce system utilization. Notify™ is a web-based, hosted solution so the only resources required for access is the internet.

8. Chris Parks, Safety Enforcement Division, California Public Utilities Commission – How can Notify™ streamline and standardize pole management and pole loading amongst utilities?
   o **Alden Response**: Notify™ allows the asset owner to have all pertinent data in one central location. When you have your poles, attachments, contracts, invoices and asset history in one database, you have the power to increase safety, eliminate ambiguity, hold parties accountable and capture revenue. While Notify™ is not a pole loading software application, it can seamlessly automate the process. Alden recommends that the committee select one pole loading software application that interfaces directly with Notify™. All data inputs will be entered through Notify™ on every new Permit to Attach request, Over-lash request, and any other instance where pole loading calculations need to be performed. Please see the attached Notify™ Pole Loading Integration document.

9. Elizaveta Malashenko, Director, Safety and Enforcement Division, California Public Utilities Commission
   o *What was the role of Eversource in the 2014 PURA ruling?*
      ▪ **Alden Response**: Eversource (formally known as Northeast Utilities/ Connecticut Light & Power) was an existing Alden customer and sponsored Alden into the PURA workshops. It was Eversource's recommendation that the state adopt a single pole database to facilitate pole transfers (aka buddy poles) and new permitting applications.

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- o *How did Alden integrate Notify™ with all utilities legacy systems in Connecticut?*
  - **Alden Response**: During the implementation phase, Alden took data files from each company (Eversource, United Illuminating, and Frontier) and uploaded the files to Notify™. Notify™ kept the legacy GIS systems up-to-date through a standardized web service API. Alden also imported in-progress work from a displaced legacy ticketing system. Alden also created an automated two-way interface with Eversource's work management system.

- o *Does Alden have any integration with SAP, ESRI, Pole Loading Applications, or other work management systems?*
  - **Alden Response**: Yes, Notify™ currently interfaces with SAP, ESRI, GE SmallWorld, and IBM Maximo. In addition, Notify™ interfaces with other GIS Systems, Work Management Systems, Accounting Systems, and Tax Systems.

- o *How do you keep data current in Notify™ and in Legacy Systems? What is the frequency?*
  - **Alden Response**: During the implementation phase, Alden takes a data file from each company and uploads the file to Notify™. Notify™ keeps the legacy systems up-to-date through a standardized web service API or through batch updates that can be auto-scheduled daily, weekly or monthly.

- o *How do you manage data/information from multiple entities that jointly own the pole or have different pole loading calculations for the same pole? How do you manage the different data streams for a single asset?*
  - **Alden Response**: Notify™ has an automated process to compare data that is provided by different entities that is executed on all pole data. Notify™ first makes a determination whether the same pole has been provided by another entity. This is accomplished by comparing the poles' location (with configurable variances) and ownership attributes. When a pole is received from multiple entities, it is treated as one pole to the system users. Reports are available to the entities which allow them to see and correct any discrepancies. Additionally, custom workflows can be created to communicate and resolve common-place data conflicts among users. Notify™ will be able to track and manage utility support structures through an interface to pole load calculation software. Owners and attachers alike will use Notify™ to determine if the pole can support the new load. In addition, having all the data and history in one central location creates a robust means of tracking data and using data to plan in the most efficient ways possible.

- o *How does Notify™ help reconcile data (i.e. lat/long, ownership)?*
  - **Alden Response**: Please see previous answer. Notify™ resolves pole owner discrepancies through its proprietary Reconciliation Tool and can facilitate resolution of data conflicts through workflows, amongst the parties, operating on centralized data.

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