



White Paper

Deploying Aeonix on Amazon Web Services

Abstract

As organizations migrate their data centers to co-location or IaaS platforms, they don't have to keep their communications on premises any more, or move to a hosted solution with limited flexibility and functionality.

Cloud Service Providers and system integrators can offer these customers the option to migrate to an IaaS platform with their communications. Value Added Resellers can offer their customers to continue a long lasting and trusted business relationship that would have been lost had the customer chosen to move to a hosted solution, or even establish their own Managed Services platform. ITSP's can step into the communications managed services business, bundled with SIP trunks, with immediate ROI.

This white paper presents a unique approach for communications solutions partners facing the challenges of declining on-premise deployments. Tadiran's exclusive 'Bring Your Own Cloud' approach that allows businesses of all sizes to move seamlessly to the hosted UC on the cloud environment. It also allows SIs and partners, big and small, to host the communications solutions

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Table of Contents

Introduction	1
What is Aeonix?	1
Amazon AWS	2
Benefits.....	2
Amazon Benefits.....	2
The Benefits of Aeonix on AWS	3
Partner Concerns.....	3
The Datacenter Issue.....	3
The Vendor Hosted Issue.....	4
The Hybrid Solution	4
Partners Solutions	4
End User's Concerns	5
End User Solutions.....	5
The Architecture Types of Aeonix Installations in the Cloud	6
Topology	6
Pure Private Cloud.....	6
Hybrid Private Cloud.....	8
Aeonix Ecosystem	9
Running Aeonix in the Cloud	10
Technological Challenges	10
Network.....	10
Performance	10
Security	11
Bring Your Own Cloud	12
Technology Partners	12

Introduction

Tadiran's 'Bring Your Own Cloud' approach empowers businesses of all sizes to have their Aeonix installed on any virtualization platform including VMware, Hyper-V and IaaS providers, as well as on premises off the shelf hardware. Cloud based, hybrid or on premises, Aeonix provides the same enterprise grade feature set and capabilities. The Aeonix UC platform, Aeonix Contact Center, and Aeonix Dispatch Console, all reside in one virtual instance or server. Aeonix can be easily ported from one platform to another, which allows customers to select a cloud provider of their own choosing for their Aeonix installation. Amazon Web Services (AWS) was selected to be the first Cloud Service Provider (CSP) to run Aeonix.

What is Aeonix?

Aeonix is a software only Communications solution that consolidates disparate business applications into a single, fault tolerant platform. Aeonix Unified Communications platform, Aeonix Contact Center, and Aeonix Dispatch Console, all reside in one virtual instance or COTS server. Aeonix runs on any virtualization platform including VMware, Hyper-V and cloud platforms such as AWS, and can easily port from one platform to another ("Bring Your Own Cloud"). Cloud based, hybrid or on premises, Aeonix provides the same enterprise grade feature set and capabilities. Aeonix' unparalleled scalability allows immediate ROI for a Managed Services practice. Other advantages of Aeonix include simplicity of implementation and maintenance, and support for open standards such as SIP (unmodified), CSTA, and Web.

The benefits inherent in the Aeonix platform are magnified when combined with Amazon AWS cloud infrastructure including:

- **Disaster Recovery** - Built in redundancy on the cloud provides an automatic disaster recovery option. This guarantees business continuity with overall survivability regardless of a failure at any single location.
- **Cost-Effective** - Aeonix on the cloud further minimizes operational and capital expenses.
- **Easy Implementation and Maintenance** - An Aeonix image can be easily implemented from your Amazon Elastic Compute Cloud (EC2).
- **Scalable** - With Aeonix's flexible single licensing mechanism and the cloud's unlimited infrastructure you can easily add and remove sites, users and applications – as required.
- **Flexible** - Businesses can spread applications across the network, or host specific applications in corporate locations.
- **Secure** - Whether in the cloud or on premises, Aeonix ensures access via secured connectivity, such as VPN.

- **Single Platform** – Aeonix is a pure software solution. As such, it can run on any virtualization platform including VMware, Hyper-V, a cloud platform and, of course, on premise servers. Because the same software can run on all such instances, Aeonix can be easily ported from one platform to another.
- **Feature Rich** – Whether running on premise or on the cloud, Aeonix provides the same feature set of an enterprise grade UC&C platform. All functionality is retained when moving off premises.
- **Complete Solution** – includes the UC&C platform, unified management, contact center solution and advanced applications such as the Aeonix Dispatch Console.

Amazon AWS

Cloud Computing provides a simple way to access servers, storage, databases and a broad set of application services over the Internet. Cloud Computing providers such as Amazon Web Services own and maintain the network-connected hardware required for these application services, while you provision and use what you need via a web application.

Customers can deploy Amazon AWS as an extension of their own computing infrastructure, seamlessly connecting applications both on the premises and in the cloud.

Benefits

Amazon Benefits

The benefits inherent in Amazon AWS include:

- **Trade capital expense for variable expense.** Instead of having to invest heavily in data centers and servers before you know how you're going to use them, you can only pay when you consume computing resources, and only pay for how much you consume.
- **Benefit from massive economies of scale.** By using cloud computing, you can achieve a lower variable cost than you can get on your own. Because usage from hundreds of thousands of customers are aggregated in the cloud, providers such as Amazon Web Services can achieve higher economies of scale which translates into lower pay-as-you-go prices.

- **Stop guessing about capacity.** Eliminate guessing on your infrastructure capacity needs. When making a capacity decision prior to deploying an application, you are often left with expensive idle resources or are hampered by limited capacity. With Cloud Computing, these problems go away. You can access as much or as little as you need, and scale up and down as required with only a few minutes notice.
- **Increase speed and agility.** In a cloud computing environment, new IT resources are only ever a click away, which means you reduce the time it takes to make those resources available to your developers from weeks to just minutes. This results in a dramatic increase in agility for the organization, since the cost and time it takes to experiment and develop is significantly lower.
- **Stop spending money on running and maintaining data centers.** Focus on projects that differentiate your business, not the infrastructure. Cloud Computing lets you focus on your own core business and customers, rather than on the heavy lifting of racking, stacking and powering servers.
- **Go global in minutes.** Easily deploy your application in multiple regions around the world with just a few clicks. This means you can provide a lower latency and better customer experience - simply and at minimal cost.

The Benefits of Aeonix on AWS

In today's communications environment, partners are faced with mounting difficulties.

On-premise deployments are declining worldwide¹ and are expected to reach a decline of 4.6% year over year in 2018².

In North America, this decline will reach 7.9% in 2018³.

On the other hand, hosted UC is expected to grow with 48% of IT planners expecting their UC functionality to be deployed on the cloud by 2017.

Partner Concerns

The Datacenter Issue

While some enterprise communication solutions providers allow partners to create and host on their own datacenter, the solution is extremely difficult to deploy. Partners need to own their own datacenter, requiring large capital expenditures (racks, computers, cooling systems, etc.) coupled by large operating expenditures (floor space, cooling maintenance, electricity, IT personnel, machine maintenance, large Internet pipe, etc.). The initial investment is huge and is a required expenditure before the partner sees

¹ Gartner (July 2014) Market Trends: Key Trends in Unified Communications Technology, Adoption and Delivery

² Gartner (2014) Forecast: Enterprise Telephony Equipment, Worldwide, 2011-2018, 3Q14 Update

³ Gartner (April 2014) Market Snapshot: Enterprise Telephony, Worldwide, 2014

their first customer deployment. To make matters worse, the cost of managing a datacenter increases over time as servers become obsolete, hardware begins to fail and environmental power requirements are ongoing. In addition, the partner is confined to the specific vendor's hardware. Eventually, more capital expense is required to purchase new machines and hardware to maintain the datacenter.

The Vendor Hosted Issue

Hosted solutions resolve the expenditure issues but reduce partners to being nothing more than middlepersons or brokers. The customers are not the partner's own but rather, the provider's. This means that customers can be moved, as required by the provider, from one partner to another. In addition, because partners receive a certain percentage of the overall deal and prices tend to drop over time, partners see less and less revenue on existing deals while expecting less and less revenue on future deals.

The Hybrid Solution

At times, a vendor's hosted and premise solutions will not interoperate. Even when they do, the interoperability can be difficult and awkward. Even when only running on premise, some vendors require different products to maintain a growing customer. Partners have to train on multiple solutions and their interoperability, creating unnecessary overhead.

Partners Solutions

With Aeonix on AWS, the solution is simple and cost effective.

- Because AWS works with economies of scale, the price of the solution drops over time rather than increase over time.
- The partner, rather than the provider, owns the customer.
- Partners pay practically zero capital or operational cost. No money is spent until the first customer purchases the system and even then, there is no cost to the partner. Smaller partners who could not afford an expensive datacenter can now get back in the game.
- Electricity, IT, floor space, cooling, and maintenance - all are provided in the base AWS pricing.
- AWS provides the Internet pipe. AWS datacenter bandwidth can be as high as 102 Tb/sec with as much as 25 Tb/sec between AWS datacenter regions⁴.
- Partners can choose whether to host on their own AWS infrastructure or on the customers' AWS infrastructure.
- A hybrid solution provides disaster recovery never before possible at this price point.

⁴ EnterpriseTech (2014) <http://www.enterprisetech.com/2014/11/14/rare-peek-massive-scale-aws/>

- Partners can start with a model by which they can sell Aeonix on premises, and at a later stage offer the customer to move to the Partner's own managed services platform. There is no need to buy an Aeonix system from scratch.

End User's Concerns

Customers who have already decided to work in the cloud face multiple issues:

- Flexible – What happens when the company grows? For example, a company that started as a small 20 person operation may find themselves a 200 person operation a few years later. Will the hosted solution grow with them? Will disaster recovery or a hybrid solution be available for them?
- Cost – The cost of UC telephony today is grossly inflated. With prices running at ~\$35 per seat per month, customers find that within 8 months or less they can purchase the system outright, without having to pay further monthly fees.
- Security concerns – Is the hosted solution secure?
- Bandwidth Options – When opting for a hosted solution, is the end user locked in to a certain ITSP or ILEC/CLEC?

End User Solutions

The end user now has a solution for all of their concerns.

- Aeonix can grow with the customer. Aeonix supports from 10 to 25,000 users.
- The per seat / per month cost of Aeonix can now show that it would take 3 years or more to have purchased the solution as a capital expense. This is compared to today's solutions where the capital investment is spent every 12, or even as low as 8 months. Furthermore, as AWS and cloud pricing drops, customers can expect reduced year over year cost.
- Aeonix is a secure UC platform utilizing the latest security and penetration testing to ensure the highest level of security.
- Tadiran has partnered with Sangoma to provide the best of breed, state of the art SBC solution directly on AWS for enhanced security and interoperability. Sangoma adds increased DOS/DDOS protection, topology hiding and transcoding capabilities on both AWS and on premise.
- AWS provides better security standard compliance than on premise deployment. This includes regular software security upgrades and the ability to monitor and handle security events. In addition, many proven security solutions are available such as firewalls, IPS, ISD and secure access for maintenance.
- 5 year TCO reduction of using AWS per application is 63.9% while providing 81.7% less down time⁵. This directly translates to lower customer costs with less customer overhead.

⁵ IDC White Paper (2015) Quantifying the Business Value of Amazon Web Services

- Aeonix portability and “Bring Your Own Cloud” approach enables end users to use or transition to the right service provider to fit their unique needs. In addition, because Aeonix is not tied down to a single cloud services provider, the end user and dealer can easily migrate according to requirements, as they arise.

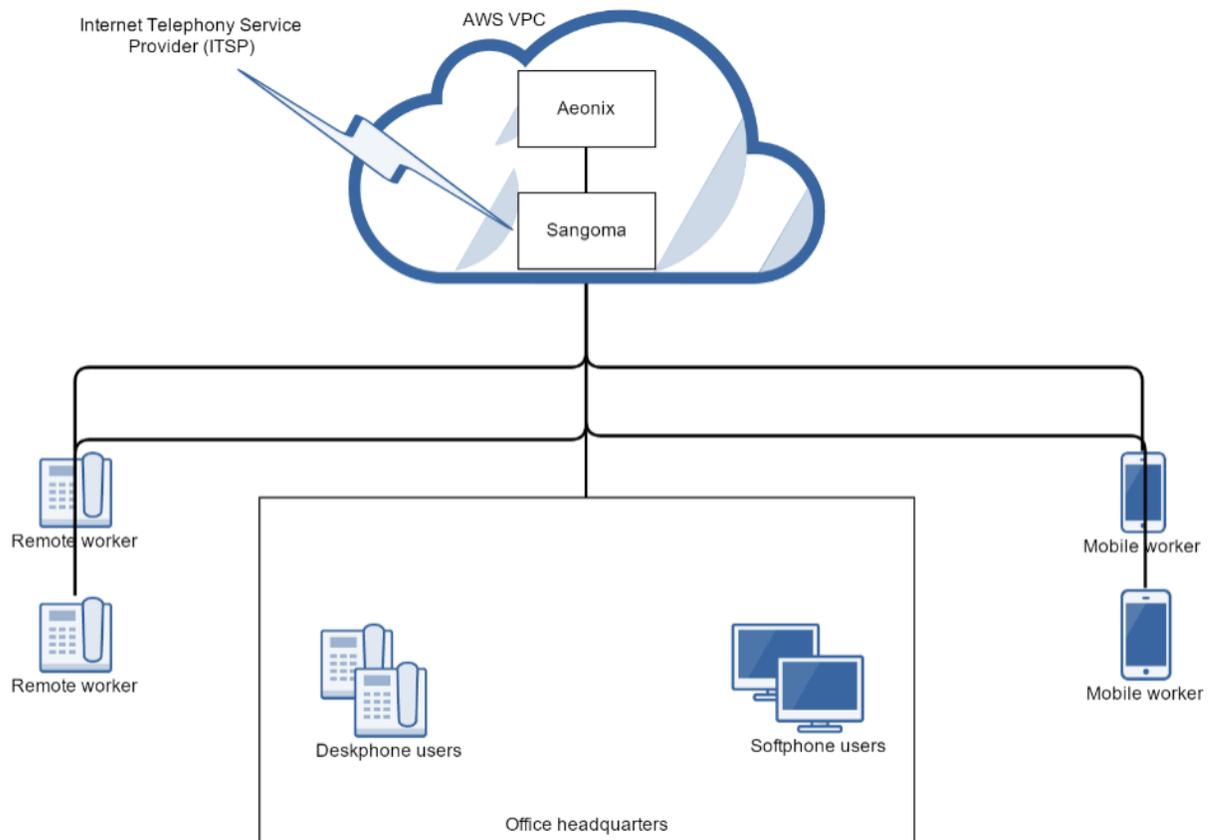
The Architecture Types of Aeonix Installations in the Cloud

Topology

Aeonix can be deployed using two types of topology – pure private cloud or hybrid private cloud.

Pure Private Cloud

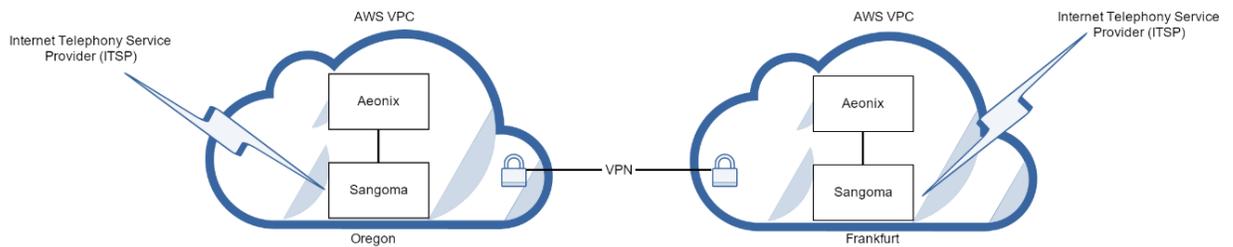
In a pure private cloud topology, a single Aeonix server or clustered Aeonix servers are installed in the Amazon cloud, in one or more regions. There are no virtual or physical servers deployed at the customer premise. All of the UC features are hosted on the AWS cloud.



SIP trunks can be terminated directly onto the AWS through the SBC as well as remote workers, mobile workers and people at the office headquarters.

For increased uptime and disaster recovery, an additional Aeonix server can be brought up in the same or different region.

With or without an additional ITSP provider, the Aeonix cluster provides increased uptime and business continuity, across the globe.



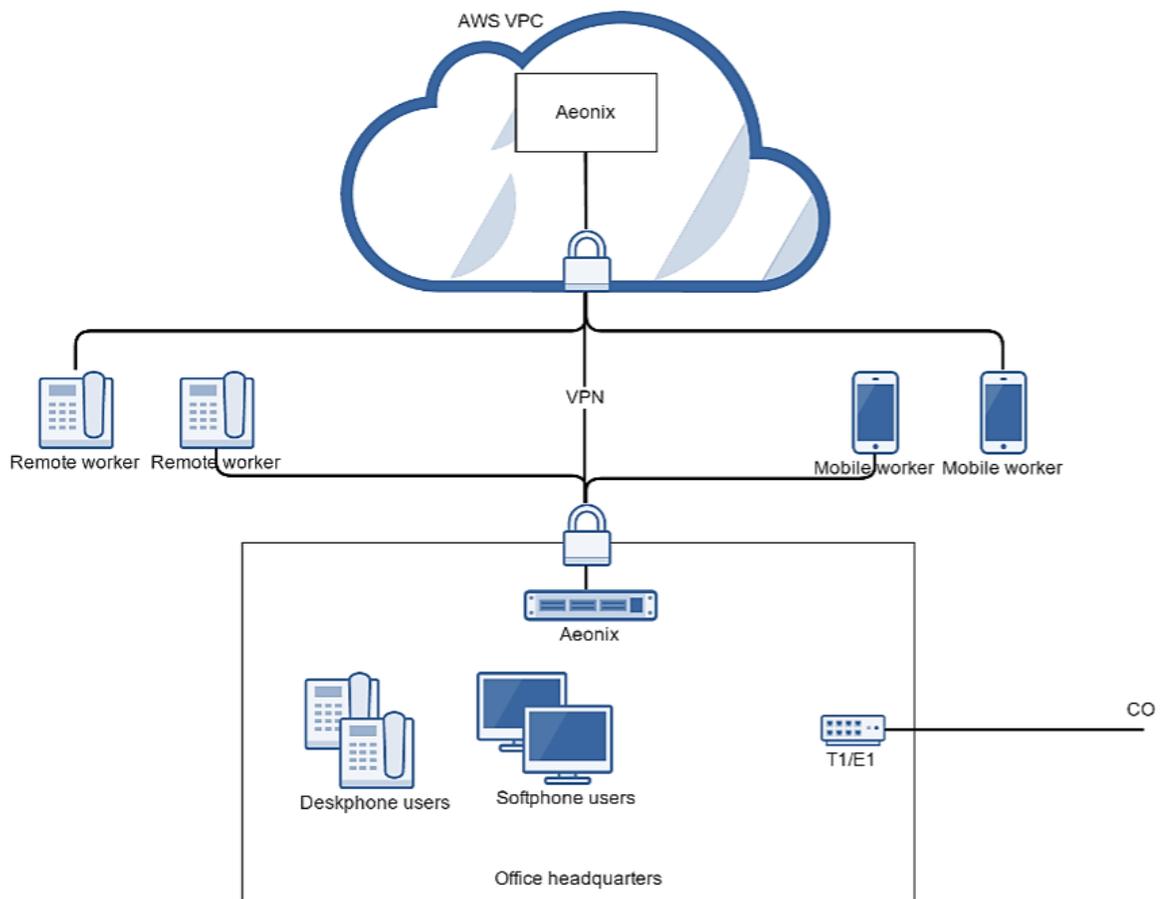
In a hybrid private cloud topology, a single Aeonix server or clustered Aeonix servers are deployed on the customer premise. These servers are clustered to an instance or multiple instances of Aeonix servers on the Amazon cloud.

Hybrid Private Cloud

While some customers are willing to jump head on into the future of cloud deployment, others may be more hesitant.

Hybrid cloud deployment allows users to install Aeonix both on-premises and on AWS.

This allows for a slower transition as customers gain confidence in the cloud and also provides disaster recovery capabilities.



When using a hybrid solution, the customer connects the enterprise to the AWS VPC using VPN. This method enables Aeonix on the AWS to behave as just another server in the enterprise space. Trunks can be provided either through ITSPs or legacy T1/E1 and FXO. Mobile and remote users can choose whether to connect directly to the enterprise headquarters or to an Aeonix running on AWS (requiring an SBC).

For enhanced disaster recovery, a SIP trunk can be connected directly to the cloud.

In case of server or network failure, using Aeonix's high availability, equipment can automatically connect to the surviving cluster without experiencing any down time or call drops.

Aeonix Ecosystem

Aeonix provides a complete ecosystem on the cloud, on premise and in hybrid configurations.

- Aeonix Contact Center (ACC) – Running directly on AWS or on premise, Aeonix Contact Center provides a complete solution for UC&C and Contact Center applications and feature sets. **ACC runs directly on the Aeonix server and is a part of every Aeonix install, adding additional cost benefits to customers while reducing maintenance overheads.**
- Aeonix Dispatch Console (ADC) – Running directly on AWS or on premise, ADC **allows organizations to rapidly respond to incidents, emergencies, and facility events.** Based on pure HTML 5 technology, ADC is easy to deploy and highly intuitive.
- Aeonix Logger – Running directly on AWS or on premise, the Aeonix logger allows users to easily record and play back calls. Features include **setting up call recording rules directly from the Aeonix administration** as well as record on demand (ROD).
- Aeonix Call Accounting (ACA) – Running directly on AWS or on premise, ACA provides enhanced protection with **real-time fraud detection.**
- SLT/FXO/PRI ports using Tadiran gateways (TGW) – TGWs hosted on premise can connect either to on premise servers or directly to Aeonix running on the AWS. This provides businesses that have on premise fax machines and FXO/PRI ports to **transition to the cloud at their own pace.**
- Unified Messaging (UM) – Running directly on AWS or on premise, UM provides users with Auto Attendant (IVR), Faxing, voicemail capabilities, Outlook integration and more. **UM runs directly on the Aeonix server and is a part of every Aeonix install, adding additional cost benefits to customers while reducing maintenance overheads.**
- Tadiran SIP phones – Tadiran SIP phones are designed to work with Aeonix, providing **MGCP-like functionality and feel.** This provides users with enhanced control over phone functionality and lets Aeonix control the SIP phones like no other platform. In addition, Tadiran SIP phones can be used with any other IP standard platform. Provisioning is provided, even when working on a pure private cloud, allowing users to manage phones from the Aeonix administration.
- SBC – Partnering with Sangoma, Tadiran and Sangoma have brought a **fully integrated, truly unique solution** to the cloud and on premise, providing enhanced security and interoperability with world class UC&C.

- Video - End users may use Tadiran's integrated solution with Vidyo, deployed on-premise in order to provide video conferencing capabilities. In addition, external video providers can be used, either hosted or on-premise, as required by the customer.

Running Aeonix in the Cloud

Running a UC platform on premise has become straightforward. Today the UC platform is just another application running on the network. Whereas, in the past, enterprises employed a telephony person to manage the phone system, today IT manages it.

However, UC in the cloud brings new challenges and requires additional attention to some of the details of UC deployment.

Technological Challenges

Network

- VOIP over the open Internet can be difficult. The larger the organization and the higher the call volume, the more bandwidth that will be consumed.
- The open Internet provides "best effort" QoS and does not guarantee performance.
- Customers may expect to "bring their own Internet", expecting ADSL to provide high quality service. These customers are then disappointed by the voice quality they receive.

MPLS connectivity provides a solution to these problems (and more) but not all ISPs can provide MPLS connectivity to AWS.

Tadiran has partnered with Level 3⁶ to provide MPLS connectivity to AWS.

Using Level 3, customers will be able to enjoy many benefits such as Access to AWS through a private, secure connection and Predictable network performance with lower latency and reliable bandwidth.

Customers who opt not to use MPLS connectivity to AWS can still enjoy Aeonix UC services. However, network connectivity and bandwidth must be considered when choosing this option. Customers not using MPLS must purchase sufficient bandwidth and Symmetric services.

Performance

Aeonix and Sangoma provide an enterprise grade solution for partners and end customers.

⁶ Please see the Technology Partners section in this document.

Performance testing shows that an Aeonix system can manage as many as 450 users on an m3.medium machine and 2000 users on an m4.large machine.

In addition, Aeonix can grow in a cluster, allowing as many as 25,000 users running on AWS.

Sangoma machines can be added for additional call traffic as required.

As customer's business grows, AWS instances can be added or modified quickly and painlessly to accommodate their growth.

For example, a customer with 2 Aeonix m3.medium instances can upgrade to m4.large on one or both of their servers. This process takes no more than five minutes and requires no downtime with Aeonix's hot upgrade capabilities.

Security

Multiple security issues exist:

- Denial of service attacks – Denial of service attacks are unavoidable. Sangoma's SBC and is designed to protect Aeonix with features such as an intrusion detection system with deep packet inspection. Sangoma automatically detects attacks and makes adjustments to prevent packets from being transmitted to the private network. Customers can also deploy Aeonix and Sangoma on multiple public IP addresses, further mitigating denial of service threats. Even if one server faces a significant load, the other server will be able to take that load and handle traffic.
- Security breach attacks (hacking) – Besides the protection offered by Sangoma's SBC, Aeonix itself is designed to detect attacks such as password scanning and makes adjustments to prevent them. Any attempt to register a device incorrectly will result in the device being blocked and the source IP ignored.
- Product security – Aeonix is a secure system and is continually being enhanced to address the ever evolving threats. Aeonix supports TLS/SRTP connectivity and forces secure and complex password. Certificates can be used to insure that remote connecting devices are who they claim to be and prevent any other devices from registering.
- AWS security – Contrary to popular belief, the cloud can be more secure than the enterprise network. Cloud providers take security seriously. They regularly update security patches and provide monitoring tools to detect attacks. AWS provides solutions for DDOS, Man in the middle (MITM), IP spoofing and port scanning⁷.

⁷ Amazon security whitepaper (2014) Amazon Web Services: Overview of Security Processes

Bring Your Own Cloud

Some partners and customers may be hesitant to move their UC solution to the cloud. One of the concerns is what would happen if the cloud provider goes out of business or if the customer will want to move from one cloud provider to another.

To address these concerns Tadiran has created the “Bring your own cloud” initiative. Under this concept, partners and customers will be able to choose the cloud solution they would like to work with. Support will include AWS, Google, Softlayer, Azure and other major players. With “Bring your own cloud” customers and partners cannot be held hostage by their cloud providers.

Technology Partners



<http://www.sangoma.com/>

Sangoma is a leading provider of hardware and software components that enable or enhance IP Communications Systems for voice, data and video applications. Sangoma’s connectivity solutions are used in leading unified communications, PBX, IVR, contact center and data-communication applications worldwide. The product line includes both hardware and software components that offer a comprehensive toolset for deploying cost-effective, powerful and flexible communication solutions.



<http://www.level3.com/en/>

Level 3 Communications is a premiere global communications provider that provides communications services to enterprise, government and carrier customers. Anchored by extensive fiber networks on three continents connected by undersea facilities, their global services platform features deep metro assets reaching more than 500 markets in over 60 countries.

Level 3’s global network reliably and securely provides enhanced, scalable network capabilities to address the increasingly complex operating environment of today’s technology landscape.



<http://www.emind.co/>

Emind services include delivering robust end-to-end cloud solutions along with automation of operational tasks, such as configuring, provisioning, controlling, tracking and monitoring cloud resources.



<https://www.ravello.com/>

Ravello is brought to you by the team that introduced the KVM hypervisor (now the standard virtualization technology in Linux). Ravello have deep expertise in virtualization, cloud, networking and storage technologies.

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<http://www.tadirantele.com/en/contact/support/>

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