

REPORT REPRINT

Sea Street wants to give you an operating system for everything

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Sea Street Technologies wants to give you an operating system for everything. And it does mean everything: infrastructure management that doesn't care what your infrastructure is or where it is, and works on its own. Founded in 2012 and based in Boston, Sea Street is an infrastructure and cloud management platform that has managed to do something increasingly rare: demonstrate a singular new way to think about and operate service-delivery infrastructure. Sea Street formally came out of stealth in 2017 with \$41m in funding, and has about 50 employees. It is a services-forward organization that currently targets very large service providers as ideal candidates for its software. Four top tier providers already have the platform in production or trial.

THE 451 TAKE

Sea Street has built a profoundly different approach to infrastructure orchestration and service delivery that begins by rejecting the entire premise of compatibility and interoperation, and replaces it with model-based governance. Right now, its targets are large service-delivery organizations struggling to modernize (and they are struggling) in the face of an IT market that continues to accelerate change. This approach to orchestration is the closest thing yet to autonomous IT operations available on the market. It represents a substantial step forward into true industrialization for IT. Put another way, it places the potential to match the likes of Google or AWS in reaching large, messy operations crippled with legacy technical debt. If Sea Street can get enough traction and prove its worth, it may have a profound impact on how we think about organizing, optimizing and delivering IT.

TECHNOLOGY

The core of Sea Street's platform is a server platform called StratOS that sits amid enterprise IT infrastructure and manages it. It is distributed and scalable to any size of operation, according to the company, and has several key features. First, StratOS is stateful, which means it tracks and responds to inputs according to instructions and key parameters.

Most cloud and IT orchestration models are based in scripting techniques, which (for example) are triggered by events or run on timetables – logging and tracking are separate processes. Sea Street puts the required management actions and the impact they have into the same process. Effectively, StratOS is capable of learning as it goes. Next, StratOS is usable with a diverse array of IT infrastructure platforms. It has brokering and cross-infrastructure management capabilities that currently stretch from public and private cloud environments like Amazon Web Services (AWS) and VMware to traditional infrastructure like storage and networking gear. Any piece of gear with an output that can go over the network can be overseen by StratOS; anything with an API can be controlled by it (provided Sea Street has developed against that device).

This extends to mobile devices, factory equipment that is computer-controlled, transmitters, sensors, even things like facility controls and computer-equipped generators. That said, there's a lot of infrastructure management software out there, and some of it can make similar claims to automation and orchestration. What makes StratOS notable is how it does this as a model.

The platform is built on a top-down, loosely coupled hierarchal object model, with each object containing defined controls, objectives and instructions. The top of the chain defines the overall objective (delivering an IT service) with parameters, metrics and instructions for what to do if those aren't met as stateful inputs are gathered.

Down the chain from this service model are smaller and smaller objects controlling and receiving input from various parts of the IT stack that comprise what's necessary for service delivery. A simple example would be delivering a mobile app for a public cloud to a set of endpoints. The service delivery is defined as 'the devices are receiving appropriate traffic from the app.'

Objects are created for each of the infrastructure components (public clouds, mobile endpoints, the application and networking). As StratOS monitors these components, it detects problems and takes action as defined in each segment, ultimately reporting back to the top service-delivery object. Resiliency is created to the required level by replicating objects across redundant infrastructures; they bring all their instructions and information with them. Sea Street calls this an 'atomic architecture,' with smaller state machines orbiting the nucleus of the governing service-delivery object.

Some of the signal advantages to this approach are that it is truly platform- and hardware-agnostic. It can be extended across modern cloud platforms and 30-year-old legacy telecom gear at the same time with positive results. It can be set up to be as simple or as complex in terms of operations, workflow and execution as needed. It can address every facet of the IT organization, from locating and ordering replacement of failed hardware to software and OS maintenance to performance optimization and compliance – anything that can be described in a workflow can be placed in an object and added to the state machines in play.

Changes to objects can be made directly in the command line, and take place in real time. To a limited extent, it can be taught to learn and improve on its own; the property of stateful operations and a feedback loop and response effectively makes this a software robot capable of acting autonomously.

CONTEXT

Overall, Sea Street's approach is a remarkable departure from how most IT operators think about systems management, especially at the large service providers the company is targeting. It is precisely these kinds of organization that stand to benefit from this approach. The downside is that the learning curve is steep for those traditional operators, and the idea of leveraging management tools all the way out of the data and into this abstract, yet functional, model will be scary.

Once in place, however, StratOS becomes the single best way to approach any kind of service-delivery optimization, or transformation efforts that are under way. One of the other benefits to this 'atomic' model is that there is always a way to incorporate architectural and hardware changes as they happen.

This can even be an explicitly defined objective; and given the proper instructions, StratOS can execute an IT transformation strategy all by itself. It is essentially a way to remove barriers from anything in the IT organization that is siloed, legacy, somehow unique and/or hard to replace, or incompatible, and bring it all under a unitary platform.

COMPETITION

Strictly speaking, Sea Street has no direct competitors that offer this kind of vision or platform for infrastructure management. Stateful management in networking is well-trodden ground, and management platforms like BMC TrueSight or IBM's management suite certainly support stateful configurations and operations.

Notably, there is a minor trend in using state machines to manage container fleets, specifically with Apache Mesos, and a stateful approach to data management that employs the same kinds of stateful feedback loops that Sea Street enables.

It is also the case that large cloud providers like Google, Facebook and AWS employ machine learning to improve their operations. However, no other vendor has made the configurable state machine the primary mechanism of management and operations, or made a system like this available for hire.

SWOT ANALYSIS

STRENGTHS

Sea Street is run by experienced technologists and is well funded. Its products are neither vaporware nor seriously lacking in development, and it has very little direct competition.

WEAKNESSES

Target customers are large service organizations ready for systemic change in their infrastructure management - a small and select pool right now.

OPPORTUNITIES

There is the potential to tap into a wide-ranging change in how the market views IT, and to be at the front of a wave of industrialization and transformation.

THREATS

A very long sales and implementation process could soak up available resources and slow uptake for Sea Street.