

The API Revolution: What it means for Data Center Infrastructure Management



The API Revolution

Most, likely you are familiar with application programming interfaces (APIs) and don't even realize it - in fact you might be using them every day. Simply put, they are specifications, routines or protocols that allow dissimilar systems to exchange information. Traditionally, APIs have been viewed as an IT development tactic – but today they are experiencing an important role as a business enabler. Fueled by web technologies, APIs are revolutionizing how information is transacted across and beyond the enterprise in a wide variety of industries and sectors, including data center infrastructure management (DCIM).

From IT Tactic to Business Strategy

Since the beginning of structured programming in the 1960's, APIs have traditionally been designed within the context of an IT project. Although technically complex, their job was straightforward: allow information to transact between disparate software systems or technologies. The technical knowledge wrapped in the complicated footprint of each API remained with its developer(s); its value did not translate to other areas of the organization.

In the late 20th century, as new technologies emerged and businesses evolved around them, APIs and the rest of the legacy environment began to accrue technical debt.¹ Meanwhile, savvy Web developers and IT entrepreneurs began reimagining how APIs could be used in the new Internet economy. Rather than pointing information transactions inward and holding their value within enterprise IT walls, they pointed the information transactions outward – and used web APIs to build booming online businesses.



Successful API-centric Companies

Netflix is a prime example of a business that achieved success through a thriving API ecosystem. The digital media company streams movie and TV content to over 1,000 types of devices, including, smartphones, “smart” TVs, tablets, computers, laptops, and gaming consoles. It also makes other content, such as ratings, recommendations and its catalog, available to countless websites. And it does all of this through APIs. In fact, the company receives roughly 5 billion requests per day from its public APIs.²

Other successful organizations with robust API ecosystems include Salesforce.com, Google, Amazon, eBay, Facebook and Twitter. All have experienced tremendous growth over the last 10-15 years, and all need APIs to serve a spectrum of devices in order to reach customers. Making their APIs public allows these companies to outsource innovation; third-party developers experiment with their information assets and share revenue streams, making it a win-win for all.

APIs Are Changing Enterprise IT

Since 2005, the number of public APIs has climbed from zero to over 13,000, with the rate of increase skyrocketing in recent years.³ This swift rise has prompted a great deal of conversation among enterprise IT, technology thought-leaders and analysts alike. Deloitte has referred to the escalation in API popularity as a “revolution,” and talked candidly about the disruption APIs are causing enterprise IT.⁴ Similarly, Harvard Business Review warned its readers in 2013: “If your enterprise IT is only focused on the internal enterprise, you’re already falling behind in the API economy.”⁵ More recently, Gartner predicted that 25% of enterprises will have an enterprise app store by 2017.⁶ This suggests that the API revolution is truly widespread, and happening more rapidly and forcefully than many organizations may realize.

Data Center Challenges

As enterprise IT faces disruption from APIs, cloud computing and the rapidly growing Internet of Things (IoT),⁷ operational challenges at the data center are escalating. The foremost challenge is planning and managing data center capacity and the ever-increasing amount of information flowing through the enterprise.

Meet the Petabyte

During the last decade, terabytes were the standard measurement for massive amounts of data. Today, it is the petabyte. One petabyte equals 1,000 terabytes, or 1,000,000 gigabytes. To put the size of a petabyte into perspective: If the average MP3 encoding for a mobile device is 1MB per minute, and the average song lasts four minutes, then one petabyte of songs would last over 2,000 years playing continuously.⁸ When you consider that Google® processes 20 petabytes of information per day,⁹ the value of state-of-the-art data center management takes on new meaning.

Even if your capacity requirements aren't in the Google realm, staying ahead of the data deluge and keeping your business-critical systems up and running has never been more challenging. It is getting increasingly difficult to use customary tools for backup, provisioning, device migration, extraction, replication, translation and loading. And the standard approach of building infrastructure incrementally to support a higher data volume is no longer effective or efficient, especially considering the scalability needs incumbent in cloud computing.

Applications on the Rise

Spurring the increase in data volume is the rise in the number of applications being used throughout the enterprise. In 2014, Forbes reported that an average of 508 applications were in use daily at enterprises. While many of those applications were enterprise apps, many of the most frequently used ones were not. In fact, the top ten apps being used daily included Google, Facebook, Gmail, Twitter, LinkedIn, Dropbox, Pinterest and Salesforce.com.¹⁰

Certainly, as data from employees' personal and professional lives become more intertwined, and the number of web apps available for business and personal use increases, the more complex it becomes to manage the data – not only from a volume standpoint, but also from data security and data quality perspectives.

The Need to Simplify

Add to these challenges the mandate for today's data centers to do more with less, and one thing becomes clear: Data centers need to find a way to more efficiently and effectively manage enterprise data and monitor, manage and control the infrastructure that supports them. Indeed, as the volume of data and devices in the IoT escalates, the need for data centers to automate and simplify critical tasks becomes increasingly important.



How APIs are Shaping Data Center Infrastructure Management

Data center infrastructure management (DCIM) is a comprehensive set of tools designed to integrate, coordinate and optimize data center function by monitoring and managing IT and facilities resources and energy consumption.¹¹ DCIM solutions represent a young industry that is meeting the long-standing need to bridge the gap between IT and facilities management. When Gartner published its first-ever Magic Quadrant for DCIM Tools report in 2014, it was a clear indication that the industry had arrived. At that time, roughly 12% of large data centers in North America had deployed DCIM tools, and Gartner predicted that the figure would rise to 60% by 2017. This rapid rate of adoption speaks to how hungry enterprise is for a solution that can continuously optimize power, cooling, space and functionality of the data center, and create greater efficiencies while reducing operational risk and costs.

Like many newer industries, DCIM is evolving quickly by impacting business processes— and APIs are there to support this evolution. APIs provide the mechanism to move the data center from manually configuring hardware and provisioning applications to using automated, scalable techniques. Integrations via APIs to both BMS and ERP systems in an organization provide end-to-end visibility - from facilities to IT systems - to how well the data center is operating, for example. A well-designed API may allow the hardware and software underneath it to change without requiring the API calls themselves to change. In this way, APIs become the backbone of a flexible infrastructure capable of supporting both legacy IT and newer cloud environments.



An API-centric DCIM platform can transform the data center from a physical infrastructure with silos of independently managed devices, to a virtualized one based on infrastructure services. It can provide integration, automation, virtualization and visualization at all layers of the data center – offering agility and efficiencies never before possible:

- Aggregates large amounts of real-time information from all areas of the data center and makes it immediately available to operators and other stakeholders
- Simplifies integration of applications running inside and outside of the data center, improving collaboration across the enterprise and with third-party systems
- Enables communication with smartphones and tablets, allowing technicians to monitor, control and analyze data anytime, from anywhere, using any device
- Provides a centralized, fully integrated view of operations across IT and facilities, increasing real-time intelligence, fact-based decision-making and swift action
- Allows integration with BMS and ERP systems, giving colocation providers access to the controls and information they need to better serve tenants

Important Questions to Ask

Many enterprises today have already determined the need for a DCIM solution to increase availability and productivity in the data center, but the concept of an API-rich solution is new to most. When evaluating DCIM providers, we suggest that you ask the following questions as part of your evaluation:

1. Does your company have an API strategy?
2. Does your DCIM solution incorporate APIs? If so, how?
3. How scalable is your solution?
4. How will it reduce my data center costs?
5. Does it allow users to monitor, control and analyze data center assets in real-time?
6. Can technicians access all of its capabilities using mobile devices?
7. What are analysts saying about the solution?

Conclusion

APIs are revolutionizing how organizations are using information assets to collaborate across and beyond the enterprise, and in some cases, create new revenue streams. At data centers, APIs are ushering in new capabilities that make data center infrastructure management more automated, scalable and productive. Because organizations that embrace the API revolution will be better positioned for future growth, be sure to ask about their API strategy when evaluating DCIM providers.

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Emerson Network Power- Global Headquarters

1050 Dearborn Drive
P.O. Box 29186
Columbus, Ohio 43229
United States Of America
800 877 9222 Phone (U.S. & Canada Only)
614 888 0246 Phone (Outside U.S.)
614 841 6022 FAX
Contact@EmersonNetworkPower.com

EmersonNetworkPower.com

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