



**Fiorano**  
Enabling change at the speed of thought

[www.fiorano.com](http://www.fiorano.com)

# Demystifying API Management

*The next evolution in Enterprise Integration*

## AMERICA'S

Fiorano Software, Inc.  
230 S. California Avenue,  
Suite 103, Palo Alto,  
CA 94306 USA  
Tel: +1 650 326 1136  
Fax: +1 646 607 5875  
Toll-Free: +1 800 663 3621  
Email: [info@fiorano.com](mailto:info@fiorano.com)

## EMEA

Fiorano Software Ltd.  
3000 Hillswood Drive Hillswood  
Business Park Chertsey Surrey  
KT16 0RS UK  
Tel: +44 (0) 1932 895005  
Fax: +44 (0) 1932 325413  
Email: [info\\_uk@fiorano.com](mailto:info_uk@fiorano.com)

## APAC

Fiorano Software Pte. Ltd.  
Level 42, Suntec Tower Three 8  
Temasek Boulevard 038988  
Singapore  
Tel: +65 68292234  
Fax: +65 68292235  
Email: [info\\_asiapac@fiorano.com](mailto:info_asiapac@fiorano.com)

*Entire contents © 2014 Fiorano Software Pte Ltd. All rights reserved. Reproduction of this document in any form without prior written permission is forbidden. The information contained herein has been obtained from sources believed to be reliable. Fiorano disclaims all warranties as to the accuracy, completeness or adequacy of such information. Fiorano shall have no liability for errors, omissions or inadequacies in the information contained herein or for interpretations thereof. The opinions expressed herein are subject to change without notice.*

# Demystifying API Management

The exponential explosion of IT Assets and mobile devices provides new opportunities for Enterprises to interact with customers over new mobility and social channels. The imperatives of digital business have created an urgent need for enterprises to innovative and evolve ways to exploit partner and third-party channels to reach a growing consumer-base. API Management is the underling core technology that enables this change.

API management allows enterprises to selectively externalize their assets not just via the traditional browser-centric model but also over mobile devices and other channels. Multiple examples abound:

- In the financial services industry a stock-trading company may expose APIs allowing third parties to programmatically access its systems to drive increased revenue; third party developers may also create unique mobile applications using the exposed API, increasing the trading volume of the stock-broker via this channel, which was previously not accessible.
- Local governments can create new revenue streams by dynamizing hitherto static data. For instance, information about parking lots in a city can be exposed via an API, allowing third parties to create mobile applications that allow drivers to find optimal parking. The city derives goodwill and potentially additional via increased business from satisfied citizens and visitors.
- Research organizations and news channels may expose valuable information via APIs and charge consumers on a per-access basis to drive additional revenue streams

In the modern digital business, customers require on-demand information on mobile devices, partners need real-time information via web-channels, programmatic APIs and other channels and third-party application developers (both independent and from business partners) require secure, managed access to internal enterprise information. The enterprise needs to dynamize existing static data as well as internal applications to create new business opportunities.

## API Management – Essential Requirements

The essential requirement for API management is to expose selected internal enterprise data and applications to third-parties including end-users and business partners and to do so in a managed, metered, monitored and secure manner.

In many enterprises, such data exposure is performed in an ‘ad hoc’ manner. Whenever a department needs expose data/applications to the external world, a custom project is typically created and outsourced to a third party services company. Each project implements a customized method of security, data-access, service-creation and monitoring. Over time, this unstructured approach leads to seriously increasing development and maintenance costs, making the process difficult to scale and manage.

## A structured approach

Modern enterprises require a Secure, Monitored, Metered and Managed approach to exposing enterprise data and applications. This is done via API Management solutions. API management servers allow enterprise data to be exposed in the form of REST or Web Services. REST is normally preferred because of its inherent flexibility. Each exposed REST Service is referred to as an “API”. The API can expose either enterprise data (form a file, database or other enterprise system) or an internal enterprise application. In a typical enterprise, there may be tens to hundreds of exposed APIs running on and managed by the API Management platform

The API Management platform typically comprises server technology that provides:

- **Security** : Security descriptors provide the enterprise fine-grained control over which end-users and user-groups can access an API.
- **Metering** : For each API, a count is maintained of the number of times the API has been called, together with a list of which applications have made the calls. IT is possible to set metering limits as well as charges on a per-call (or other) basis for all API calls.
- **Monitoring** : This allows system administrators to track which APIs are using the most resources (CPU, memory etc.) and to graph the related information to identify hotspots and contention. Using this information, system administrators may decide, for instance, to split API call-load over multiple API Management servers (provided the underlying solution allows for this scaling-out process).
- **Management** : A high level view of the overall implement of API Management across the enterprise, including a synopsis of the security, metering and monitoring processes running across multiple servers within and outside the enterprise firewall.
- **Developer Support and Socialization**: Exposed APIs need to be marketed or socialized to third-party developers; this is typically done via developer portals, either within or external to the API management platform, where available APIs are published.



Figure 1: API Management – structured data and application access

A scaled, managed and structured approach to exposing data and applications via API Management brings many benefits to an enterprise including:

- **Increased business velocity:** By allowing partners and suppliers to directly access relevant information, enterprises drive increased revenue since information flows on-demand, in real-time. Previous batch processes are easily replaced by just-in-time data flows, helping all parties to optimize costs, reduce delays and manage inventories.
- **New revenue streams:** The metering features of an API Management platform allow the enterprise to charge third-parties of making API calls, leading to new revenue streams. For instance, a financial analysis firm may charge for API calls to allow access to high-value information on hot stock picks for the day or week. Fine-grained control over the charging process allows the enterprise to structure charges for various services as required.
- **Leveraging external development teams:** Exposed APIs can be used directly by third-party developers to create applications that access enterprise-internal data, reducing development costs and freeing up internal development teams for other projects.
- **Increased development team productivity:** By using APIs, development teams within the enterprise are more productive since they no longer have to spend time writing data or application access functions within the firewall.

#### **The Fiorano approach: linearly scaled API Management Infrastructure**

Fiorano API management implements all of the features discussed in this paper, including security, metering, monitoring, management and developer support. The Fiorano API management platform architecture scales linearly, allowing the infrastructure to grow on an as-needed basis. The system is illustrated in figure 2.

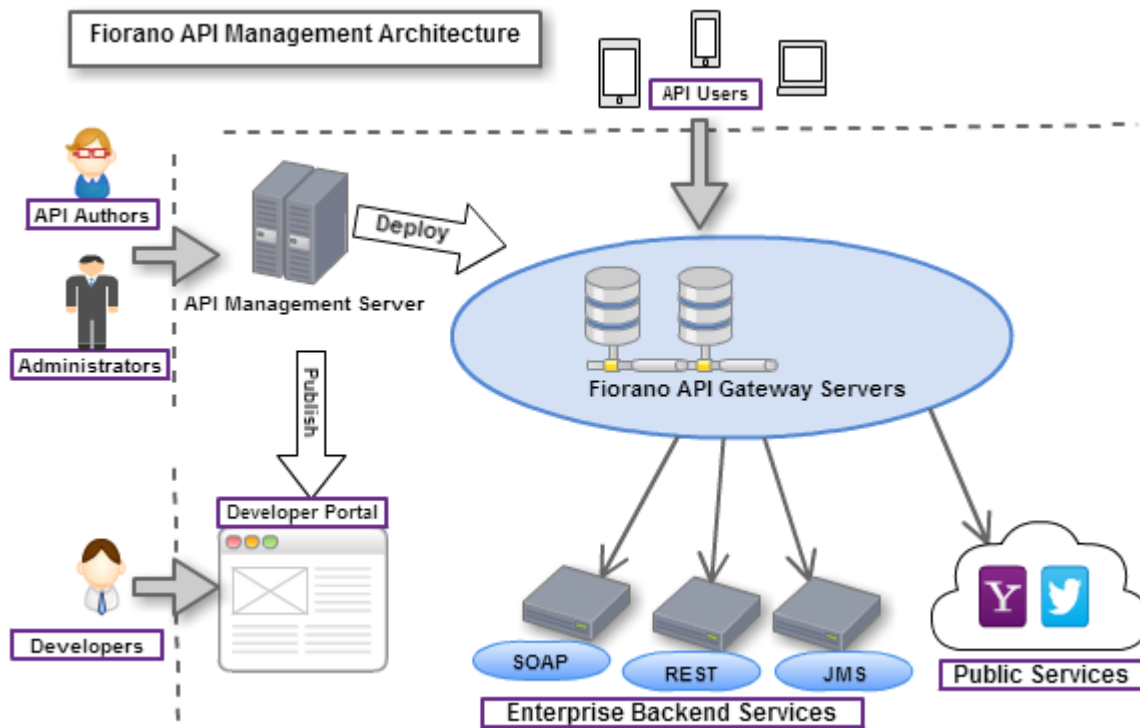


Figure 2 : Fiorano API Management System Architecture

The system comprises a central 'API Management server', which serves to administer and control a network of available API Gateway servers. There may be multiple API Gateway servers, all of which are controlled by a single Management Server. Each API Gateway server may host several hundred APIs in the form of REST or Web-services calls. The Fiorano API Management server works with all REST or Web-services or JMS based systems that are already implemented within the enterprise; there are no Fiorano-related dependencies on the creation of the REST or Web-service that has to be managed and exposed as an API.

As can be seen from figure 2, the Fiorano architecture scales linearly. As the number of APIs to be hosted increases, one deploys additional API Management servers in the form of 'peers'. This allows load to be distributed across multiple servers, enabling a build-as you grow strategy.

### Summary

Web APIs are quick becoming the centerpiece of today's Digital Enterprise, connecting anything and everything. By exposing data and application functionality to external applications on mobile devices, consoles and affiliate Web sites, an organization can remake its business into an extensible platform. API Management is a mandated requirement for today's modern enterprise, enabling interactions with customers over new mobility and social channels and evolving ways to reach new customers through partner and third party applications.