

Vol. 26, No. 9
September 2013

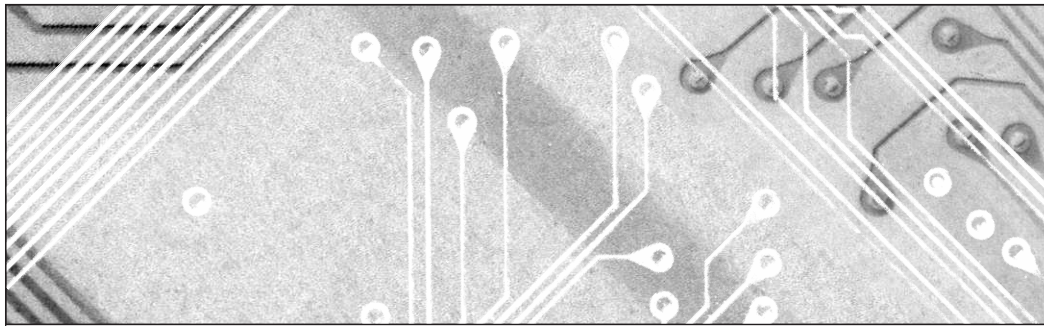
"One of the great things about the API economy is that it is based on existing business assets.... What were assets of fixed and known value suddenly become a potential source of seemingly unlimited business opportunities."

**— Giancarlo Succi and
Tadas Remencius,
Guest Editors**

Profiting in the API Economy

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Cutter IT Journal

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Part of Cutter Consortium's mission is to foster debate and dialogue on the business technology issues challenging enterprises today, helping organizations leverage IT for competitive advantage and business success. Cutter's philosophy is that most of the issues that managers face are complex enough to merit examination that goes beyond simple pronouncements. Founded in 1987 as *American Programmer* by Ed Yourdon, *Cutter IT Journal* is one of Cutter's key venues for debate.

The monthly *Cutter IT Journal* and its companion *Cutter IT Advisor* offer a variety of perspectives on the issues you're dealing with today. Armed with opinion, data, and advice, you'll be able to make the best decisions, employ the best practices, and choose the right strategies for your organization.

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Cutter IT Journal® is published 12 times a year by Cutter Information LLC, 37 Broadway, Suite 1, Arlington, MA 02474-5552, USA (Tel: +1 781 648 8700; Fax: +1 781 648 8707; Email: citjeditorial@cutter.com; Website: www.cutter.com; Twitter: @cuttertweets; Facebook: Cutter Consortium). Print ISSN: 1522-7383; online/electronic ISSN: 1554-5946.

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Opening Statement

by Giancarlo Succi and Tadas Remencius, Guest Editors

If you look at history, innovation doesn't come just from giving people incentives; it comes from creating environments where their ideas can connect.

— Steven Johnson

One way of looking at the API economy is to consider it as a combination of technological advances and new social and cultural trends that merged to form an interconnected environment ripe with exciting business opportunities. At the center of this fertile ground are Web APIs, which connect providers and consumers (developers) into a symbiotic ecosystem. In a sense, APIs connect companies much as social networking sites connect people. However, where the latter are driven by social needs, API ecosystems are based on a win-win scenario in which benefit is gained not only by providers and consumers, but also by end users, who receive more and better products and services targeted at context-specific user experiences and expectations.

Innovation is the specific instrument of entrepreneurship ... the act that endows resources with a new capacity to create wealth.

— Peter Drucker

One of the great things about the API economy is that it is based on existing business assets. There is no need to design new products or come up with new services — companies can simply capitalize on their existing core business strengths. This potentially allows any company, regardless of its size or actual business, to join in the new economy by exposing some of its assets to its partners or the general public. What were assets of fixed and known value suddenly become a potential source of seemingly unlimited business opportunities.

The role of API ecosystems makes the API economy quite different from a typical business philosophy. Companies are no longer in direct control of the outcomes of their actions — the impact of API consumers on the success of the exposed APIs is simply too great. No matter how well producers prepare or how many investments they make, the ultimate factor in the outcome of an API program is the API consumers and their

ability to develop innovative and timely products and services. In fact, both parties depend heavily on each other, while having a relatively low level of direct contact and little control over each other's actions. The advantage of this arrangement is that it offers a lot of flexibility and prevents tie-ins on both sides: providers generally can change or stop an API program quite easily, while consumers have the freedom to switch to alternative APIs from other providers at low or zero overhead cost.

Innovation is taking two things that already exist and putting them together in a new way.

— Tom Freston

On the API consumer side, the API economy is all about innovation and rapid time to market for new solutions. Even fresh startups with zero starting capital can quickly produce new mobile apps by combining multiple existing APIs in innovative ways or applying them in new contexts.

In a sense, APIs connect companies much as social networking sites connect people.

We can see innovation not only in developed solutions and services, but in business relationships as well. New business models centered around APIs are appearing and evolving at a fast pace.

The late Steve Jobs stated in one of his speeches that "innovation distinguishes between a leader and a follower." It is interesting to consider how this applies in the context of the API economy. Here innovation becomes a shared commodity that goes in a continuous cycle from producer to consumers and back again. So who is a leader and who is a follower in this case?

If anything can be said for sure, it is that the time of the API economy is now, and an interesting time it is. The potential benefits are many, and there are plenty of success stories out there. However, which of those benefits are achievable by specific companies and in what ways remains unclear. This issue of *Cutter IT Journal* explores these topics and aims to help companies answer the question of how the various benefits offered by the API economy can be unlocked.

If anything can be said for sure, it is that the time of the API economy is now, and an interesting time it is.

We begin with an article by Cutter Fellow Israel Gat and his coauthors, who take a critical look at some of the main selling points encountered amidst the hype surrounding the API economy. The authors first discuss whether the API economy is really a new type of economy and suggest that there are, in fact, a variety of different economic models in play — some old and some new. They then look at the current state of the API economy, taking note of its rapid growth. They elaborate on potential future directions, pointing out the risk of market saturation, and conclude that now is probably the best time for businesses to invest in the API economy, if they haven't done so already. Gat et al. continue with an examination of how the API economy affects human innovation and whether it really serves as a driving factor. The authors show that “human innovation” is a somewhat misleading term, arguing that it would be more accurate to talk about “human creativity” in this

context. Finally, the authors examine the claim that the API economy acts as a leveling factor for companies of different sizes. While they agree that the API economy provides opportunities for smaller companies (particularly in the role of consumer), Gat et al. highlight the other side of the coin — the advantages that big players have when it comes to marketing their APIs and enforcing provider-favorable SLAs and API business models.

In our next article, Chandra Krintz and Rich Wolski present their strategy for implementing an API governance platform for managing, unifying, delivering, and composing APIs in a commercial setting. They advocate the use of cloud-based technologies and emphasize the need for consistent control over the APIs, uniformity of operations and management features, as well as standardized access control. The authors draw examples from their experience with such a platform and focus on the key capabilities and functionalities necessary for effective API governance.

Christian Schultz, our next author, takes an in-depth look at how traditional companies — so-called digital immigrants — can use an API-centric approach to achieve significantly faster digital growth and better cope with the challenges of the digital marketplace. He highlights the importance of embracing innovative business practices and suggests companies focus on creating new and convenient customer experiences. Schultz then discusses the typical advantages that an API program offers and follows up with API growth opportunities. He concludes with a look at how an API-centric approach can mitigate certain risks of digital business and ensure that the core team remains intact, thereby maintaining critical know-how within the organization.

In the issue's fourth article, the two of us present a methodology for API management based on the ITIL framework. We describe a 10-step approach that corresponds to the service strategy process in ITIL and is targeted at the creation of a new API program. Our focus is the business side of APIs, starting from high-level business goals and available business assets. We offer both top-down and bottom-up approaches to identifying which particular business assets should be exposed as APIs and in what way. In the article, we show how organizations can make use of business cases to form an initial API business strategy, identify target consumer (developer) groups, and come up with benefits for the consumers who adopt the exposed API. The described framework also includes risk, budget, and ROI assessment and ends with a construction of API marketing and consumer support strategies.

UPCOMING TOPICS IN CUTTER IT JOURNAL

OCTOBER

Matt Ganis and Avinash Kohirkar

The Value of Social Media Data Analytics

NOVEMBER

Scott Ambler

Disciplined Agile Delivery: Part II

We wrap up the issue with an article by Chuck Hudson, who delves into common pitfalls that occur when Web APIs are used in a mobile environment. He identifies seven typical challenges faced by API providers and consumers, ranging from connectivity and optimization problems to authentication flaws and licensing limitations. Hudson accompanies each challenge with a short description of known solutions for mitigating the issue and gives examples of typical approaches currently used in the industry.

As you get into this issue, remember that the API economy is a new phenomenon that is evolving at a fast pace. Therefore, don't take anything presented in these articles as a strict rule or a certainty. Rather, use the information provided here as general advice gained from the experience of others and apply it in your own context as you see fit. Even though all signs point to the new API economy staying here for a long while, only time can tell where it will lead us. After all, unpredictability is an inherent feature of innovation.

To conclude, we would like to invite you to visit www.apiwisdom.com, our API economy research initiative, which includes an open API for analyzing RESTful APIs.

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Unified API Governance in the New API Economy

by Chandra Krintz and Rich Wolski

MANAGING DIGITAL ASSETS

Digital assets are becoming the value-carrying resources that underlie much of today's economic activity. Increasingly, businesses depend on the ability to produce, manage, trade, and, perhaps most problematically, destroy digital artifacts (software and data) as key components of commercial functionality and profitability. Because these assets exist entirely within computer systems that are interconnected via networks, new techniques for managing them, such as Hadoop, cloud computing,¹ DevOps, and NoSQL, continue to proliferate. At the same time, previously successful software and IT approaches (e.g., service-oriented architecture, Web services, and machine virtualization) are enjoying a renaissance of utility.

Providing software and data as a service — that is, enabling immediate, authenticated, and scalable networked access to digital assets — is critical to the success of any commercial enterprise that possesses them. To facilitate this access, asset owners export assets via an API that both defines and controls what operations can be performed on each asset, by whom, and under what conditions.

APIs also decouple the implementation of this access functionality from the technologies that are used to manage and store the assets. That is to say, while the assets may remain the same, the technologies used to serve and implement them can change, particularly as technological advances reduce implementation costs. APIs must preserve user access to the assets when this occurs. Thus, the lifecycle of the API follows the lifecycle of its assets and *not* the lifecycle of the surrounding technologies, which typically change at a more rapid pace.

Finally, APIs in the modern digital economy must provide standardized network-facing access so that the widest possible variety of applications and devices can access their digital assets. They must also support availability guarantees and fault management strategies associated with the assets and the implementing technologies. It is the combination of standardized, continuously available, networked access that enables a digitally based business to scale.

Thus, APIs provide three functions that are critical for the management of digital assets and artifacts. Namely, they:

1. **Implement control** over the assets, both in terms of operations and access control
2. **Protect the asset lifecycle** from technological changes driven by economics
3. **Enable scale** through standardized, networked connectivity and fault management

Because of these functions, the implementation and management of APIs can be more important than either the digital assets or the technologies that underlie them. For example, consider a company that specializes in website analytics. A change from a NoSQL database to an object store as the implementing technology should be possible without disrupting the business. Thus, the API for the analytics must remain stable while the technologies change. Similarly, the analytics data itself may be changing from day to day. The API for accessing the current data must remain constant, stable, and functional, though, or business will be interrupted.

Despite the primacy of APIs in the new digital economy, however, little technology has yet been developed to implement *API governance* — combined policy, implementation, and deployment control — in a commercial context. Good technologies exist for managing digital assets and for developing both hardware and software necessary to implement digital assets (including the necessary APIs). A few technologies^{2,3} are emerging for packaging and cataloging APIs. Yet technologies for providing stewardship of APIs through all phases of governance are rare.

INTRODUCING APPSCALE

In this article, we describe a strategy for implementing API governance using AppScale, a distributed software platform for managing, unifying, delivering, and composing APIs in a commercial setting. AppScale implements a set of core services that are specifically designed to implement high-level APIs in a consistent, unified

way. Using such a platform to implement APIs for commercial digital assets offers several advantages with respect to API governance. In addition to the typical API management features (cataloging, search, deployment support, etc.), AppScale focuses on the following capabilities:

- **Change control.** When API changes are necessary, AppScale restricts how they are implemented so as to control the impact of change on API consumers. If changes need to be rolled back, AppScale returns to previous functionality consistently and completely. It enables this via API usage tracking, versioning, and compatibility checking and enforcement.
- **Consistent policy implementation.** Policies governing the use of digital assets and/or their APIs are implemented consistently across the platform regardless of the constituent technologies that are used to implement the assets themselves. Administrators specify asset properties via a single portal for access control, service levels, lifecycle, backup, and failover, which the platform applies consistently across all assets.
- **Implementation portability.** API implementation is decoupled from the implementation of the digital assets. As technologies evolve or, more problematically, devolve when they sunset, AppScale maintains API integrity by providing an intermediate abstraction layer that allows the implementations to change without impacting API consumers.
- **Monitoring and auditing.** As a platform, AppScale provides a unified fabric for monitoring and auditing API activity. By doing so, AppScale allows enterprises to gather and analyze data in the same way from digital assets that use different implementation strategies and technologies.

AppScale provides these capabilities as part of a freely available and extensible distributed open source platform. As such, AppScale can be used by enterprises for API governance and application deployment without vendor lock-in. We next describe API governance in greater detail and discuss how the AppScale design facilitates such use.

UNIFYING API GOVERNANCE

Increasingly, enterprise applications are taking the form of network-accessible services that export well-defined and access-controlled interfaces. As a result, the development process includes:

- **API development** — the process of designing and coding the software components responsible for implementing the interface
- **Service development** — the process of implementing the application logic
- **Deployment configuration** — the process (often coded as scripts) of coordinating the initiation of all application components when the application is run

Thus the term “application” in this context refers to three separate but interrelated sets of programs that implement the API, service, and deployment.

This decomposition allows the service implementation and deployment components to change *while the API remains the same*. In this way, application users maintain consistent, unchanging access to digital assets while the service implementations and underlying infrastructure evolve in response to advances in technology.

As a result of this modularity, the lifecycle for APIs is significantly longer than that of service or deployment implementations. Moreover, from a user perspective, APIs implement policy. Access controls, SLA specification and/or negotiation, fault and error response, and so forth are all presented to users through APIs. Changes to these policies are usually global and long-lived, making their correct implementation critical to the scalable usage of digital assets.

For these reasons, in addition to standard management functions such as installation support, software patching and upgrade, and software dependency resolution, APIs require the implementation of governance — the policies and auditing functions necessary to protect the integrity of the APIs in a unified way. A unified approach to API governance is key to managing applications at scale since the applications and the digital assets they manage are likely to be developed by different entities in a large organization. Indeed, DevOps (an organizational approach that combines development and IT operations) is designed specifically to promote scalable and Agile application development by independent suborganizations. Without unified API governance, however, the scale that this new methodology engenders can lead to a proliferation of incompatible interfaces and wasted or duplicated development effort.

Using a Platform to Ensure Consistency

To ensure consistent control over the APIs in an enterprise, our approach is to build the necessary control functionality into a complete platform that spans all

resources and assets. The platform is unique in that it is designed end-to-end so that it monitors, manages, and protects all APIs under its purview in the same way, regardless of the infrastructure or digital assets involved.

Using such a platform, enterprise management is assured that policies governing APIs are implemented globally in a consistent way. This consistency of governance permits independent application development and operation by preventing the possibility that APIs will become suddenly incompatible due to changes or innovation.

To allow the technologies that implement the APIs to change as business or engineering needs warrant, AppScale plugs in multiple competitive alternatives for each service so that enterprises can compare/contrast them and choose the technologies that the local IT organization wishes to exploit.

A PLATFORM FOR UNIFIED GOVERNANCE, DEPLOYMENT, AND MANAGEMENT OF APIs

The AppScale platform⁴ is a freely available, open source runtime system for Web, cloud, and mobile applications and the services they use for their implementation. AppScale implements a set of core functions that enable consistent management of the APIs that export access to these services, across the applications and digital assets it hosts. These functions include support for:

- **Plug-in integration** — a set of abstractions interposed between APIs and platform service implementations that facilitate independent and isolated service management
- **Configuration** — a service that all applications use to specify and access their respective configuration information in a consistent way
- **Deployment** — a service that invokes and decommissions APIs and service implementations under administrator control
- **Elasticity and autoscaling** — automatic resource allocation and application scaling according to an external policy, observed runtime load characteristics, and service failures

- **Auditing and monitoring** — consistent provenance for the APIs, service implementations, and digital assets managed by the platform

The AppScale platform combines these functions within a distributed system that is packaged as a virtual machine (VM) image. Platform administrators deploy AppScale via a toolset that constructs the platform as a collection of VM instances over any cluster system that supports virtualization, including public and private cloud infrastructures as well as on-premises and managed data centers. The combination of unified automated services for managing APIs separately from service implementations, the scale realized by AppScale's distributed architecture, and its portability across scalable data center technologies make it an ideal engine for implementing API governance.

Example: API Governance and Google App Engine

To illustrate how AppScale implements governance, we now describe its support for Google App Engine (GAE). In particular, AppScale exports (mirrors) the publically available APIs of GAE so that developers can deploy any GAE application either on the GAE platform over Google's resources or on the AppScale platform on-premises, without modifying their applications. To enable this, AppScale leverages plug-in integration to link each API to an open source implementation of each service. Between each API-service pair, AppScale implements a software abstraction that maps API calls to the interface of the service implementation.

To allow the technologies that implement the APIs to change as business or engineering needs warrant, AppScale plugs in multiple competitive alternatives for each service so that enterprises can compare/contrast them and choose the technologies that the local IT organization wishes to exploit, without impacting the digital assets they deliver. If, for example, an enterprise DevOps team uses the Apache Cassandra NoSQL data store, AppScale implements the GAE abstractions using Cassandra as a back end and the GAE API code as a front end. With AppScale, the applications no longer dictate the underlying technologies that must be used, allowing the IT organization to govern its infrastructure without concern for application modification. Further, if the team decides to adopt a different storage infrastructure, AppScale simply plugs in the new technology without changing the APIs the applications use to access it.

Because the API code and back-end software technologies are integrated by the distributed AppScale

platform, they can be instrumented and monitored in a uniform way. If one or more of the software modules is/are modified, AppScale can track and report on these modifications. AppScale also supports automatic deployment of these technologies so that new code is introduced in a controlled manner and can be rolled out or rolled back in a way that is both auditable and scalable.

Since AppScale itself is portable to a variety of public cloud and on-premises software environments, it is possible to run AppScale in Google Compute Engine (GCE), Amazon's AWS, and Eucalyptus.⁵ GAE applications then migrate between GAE, AppScale over GCE, AppScale over AWS, and AppScale on-premises over Eucalyptus. This deployment portability using a single, consistent platform allows IT to develop a wide variety of disaster recovery and cost management policies without the need to modify the applications.

Finally, APIs do need to change from time to time. However, it is often necessary to support applications that use the "old" API as a legacy. Because AppScale runs under the control of IT or DevOps, it will run whatever version of the API the local organization requires. Thus the organization controls the lifecycle of the APIs it uses through its business logic and not the lifecycle determined by a third-party service provider.

USE CASES

We next describe two common use cases that examine key aspects of platform-based API governance using AppScale: uniform policy implementation and implementation portability. Both cases rely heavily upon monitoring and decoupling of digital asset access via APIs from the software technologies that facilitate their delivery.

- **Uniform policy implementation.** Platform administrators can use AppScale to specify a set of policies to enforce across assets. Our most common use case employs this feature to provide uniform backup of data assets and automatic failover for the services that implement them. Administrators can specify a range of properties for data assets, including how many redundant copies to store, where to store them (locally, remotely, in any number of different public or private cloud systems, etc.), and the type of consistency that should be employed across copies. For executing services, administrators identify those that are fault tolerant and specify properties such as failover target(s) (i.e., what alternative implementations to use when a failure occurs).

- **Implementation portability.** AppScale can be used to enable businesses to avoid lock-in — the overhead associated with rewriting software in order to use alternatives to constituent software components. The implementation portability of the AppScale platform precludes lock-in in two ways. First, since the platform executes on a wide variety of deployment targets (public, private, and managed clouds, clusters, and data centers), AppScale brings cross-cloud portability to applications and services that execute over it. Second, because AppScale decouples APIs and assets from the technology that facilitates their export, administrators can easily employ different alternatives — without changing the API, the application code that uses the API, or the underlying digital assets — by selecting between them during platform deployment.

AppScale significantly simplifies API governance for these two use cases by managing the complex distributed technologies that underlie important enterprise digital asset functions and features (fault tolerance and disaster recovery) and by allowing implementation technologies to change without impacting asset access (precluding lock-in).⁶⁻⁸ Moreover, AppScale provides users with a uniform way of specifying, monitoring, and customizing this functionality across assets so that developers can focus on innovation and digitally based businesses can scale their digital asset offerings.

CONCLUSION

APIs have emerged as a key component of the modern digital economy. The reason for this is that they provide access to software and data in a standardized way that is easily consumed by humans and software over a network. The aspects of APIs that are critical for their successful use by enterprises include standardized access control, protection of asset lifecycles against technological changes in their implementation ecosystem, and uniform operations and management for platform-wide features such as elasticity, availability, and fault tolerance.

Advanced cloud platforms can facilitate API governance by decoupling digital assets and their APIs from the technologies used to deliver them. The abstraction layer that enables this decoupling allows the creation of software systems that implement a set of core services that can be reused across a wide range of digital assets. AppScale is one such distributed software platform for managing, unifying, delivering, and composing APIs in a commercial setting. Additional information on the open source AppScale cloud platform can be found at www.appscale.com.

ENDNOTES

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Israel Gat and Giancarlo Succi

●●● CONSULTING

The API Economy

Why and How to Expose Your APIs

This workshop will help you answer these questions:

- What is the API Economy?
- How does the API Economy pose new opportunities for my company?
- How do I choose which information assets to expose?
- How do I select a narrowly focused initial API (or suite of APIs) for a pilot project?
- What business model will be most appropriate for the chosen API?
- What resources do I need to provide in order to leverage the chosen API?
- How do I harmonize my API Economy business plan with my Cloud strategy?
- How will API Economy projects affect my software process?
- How can I avoid the common pitfalls of an API Economy strategy?

Overview

You can harness the very same tenets that have driven the growth of “sharing economy” success stories like Zipcar and Airbnb to accelerate your company’s success. By sharing and leveraging your company’s information assets, it can launch new lines of business that amplify, augment, and quite possibly outperform the business your company has traditionally pursued. We call this the API Economy. How does it work? You expose and monetize APIs specifically designed for others outside your company to programmatically access your information assets.

Consider, for example, a company that conceives, develops and provides development tools as a service. This company generates and captures value by enabling developers to deliver software to their customers more effectively and efficiently. In the course of doing so, the development tool de facto captures how productive the development team is. By simply exposing some APIs to report on the productivity data in a meaningful manner, the tool company can engage in a new business: productivity management.

No matter what industry your company is in — retail, transportation, financial services, oil and gas, or any other — it is likely already impacted by the API Economy. You can ignore it, but the API Economy will not ignore you. In this workshop, you’ll discover why and

how you can embrace this fast growing opportunity.

In addition to lecture-style modules, the workshop includes working sessions where you’ll start developing key elements of an API Economy strategy in your context. At the conclusion of the workshop, you’ll be well along the path to choosing from a few potential pilot project ideas.

Generate a new kind of value for your customers and recapture value for your company when you start an API pilot project.

The API Economy provides an avenue for your company to create new revenue streams by taking advantage of the information that it accumulates and allowing other parties to evolve it beyond its original purpose. Cutter’s experts will help you figure out how.

**Agile Product
& Project
Management**

Target Audience

- Senior product managers
- Marketing/business development professionals with strategic planning responsibilities
- Seasoned application architects and developers
- Experienced software evangelists and community managers

Logistics

The recommended class size for this in-house workshop is up to 20. You'll need a room large enough to accommodate 3-5 work groups, with plenty of wall space for posting sticky notes. (A few flip charts with stands could be used as an alternative, if necessary.)

For more details, or to arrange the API Economy workshop, contact your Cutter Account Executive at +1 781 648 8700 or send email to sales@cutter.com.

"Any company, regardless of its size or actual business, can join in the API economy by exposing some of its assets to its partners or the general public. What were assets of fixed and known value suddenly become a potential source of seemingly unlimited business opportunities."

— Giancarlo Succi,
Cutter Senior Consultant

"Profiting in the API Economy,"
Cutter IT Journal, Vol 26, No 9



"The APIs you choose to expose will define the kind of services your company is able to offer."

— Israel Gat, Cutter Fellow

"You Are What You Expose,"
The Cutter Blog, 20 December 2012

Cutter Research & Opinion on the API Economy

"Introducing the API Economy:
A Dialogue"

— Jim Plamondon,

(www.cutter.com/content/project/fulltext/reports/2012/08/index.html)

"A Survey of the API Economy"

— Giancarlo Succi and Israel Gat

(www.cutter.com/content/project/fulltext/updates/2013/apmu1306.html)

"Profiting in the API Economy"

— with Guest Editors Giancarlo Succi and Tadas Remencius

(www.cutter.com/itjournal/fulltext/2013/09/index.html)

"How Can an API Platform Support the
Integration of SMAC?"

— Suman Banerjee

(www.cutter.com/content/itjournal/fulltext/2013/02/itj1302d.html)

"Role of the Product Owner in the API
Economy"

— Israel Gat

(blog.cutter.com/2012/12/27/role-of-the-product-owner-in-the-api-economy/)

"You Are What You Expose"

— Israel Gat

(blog.cutter.com/2012/12/20/you-are-what-you-expose/)

For More Information

Cutter's API Economy workshop is customized to meet your specific needs. For details, send email to your Cutter Account Executive at sales@cutter.com or call +1 781 648 8700.



Intense, Interactive Instruction. Effective Learning.

Register today and save!

Single Seat: \$1995 for a limited time (save \$500!)

Team Builder: Buy 1 seat for \$2495 and bring a colleague at a deep discount. (Save 30%)

Executive education on IT leadership and emerging trends. A year's worth of professional development and personal enrichment in 3 invigorating days.

From an in-depth case study taught in the popular business school style, to interactive small group exercises and keynotes that help you identify business opportunities made possible by emerging technologies, you'll enjoy truly unbiased discussion and meaningful debate on today's IT opportunities and challenges at the Cutter *Summit*. Discover and learn about new strategies, technologies, and leadership skills — from Cutter's exceptional lineup of experts — that will help you embrace the ever-unfolding opportunities and challenges of the SMAC business environment.

In addition, you'll benefit from hands-on seminars and roundtables led by Cutter's Practice Directors and Senior Consultants on topics such as software engineering and agility, business and enterprise architecture, CIO/CTO issues, and data insight and social BI, to name a few.

You'll enjoy (and join in on!) raucous panel debates; networking at lunches, breaks, and entertaining evening events; and get one-on-one guidance and input from expert presenters and participants.

Monday, 4 November 2013



The Evolving Role of 21st-Century Technology Leaders

Keynote by Robert D. Scott

Cutter Fellow; Director of the Information Systems Executive Forum, Ross School of Business, University of Michigan

Panelists: Robert Austin, Sheila Cox, Art Hopkins



Lightning Talks

Hosted by Tim Lister

Short and to-the-point presentations around a single strategy, technique, or success story.



Evening Cocktail Party

Unwind and socialize with the speakers and your fellow attendees while enjoying some of Boston's tastiest regional specialties.



Big — and Fast — Data Analytics

Case Study with Vince Kellen

Cutter Fellow; Senior Vice Provost for Academic Planning, Analytics & Technologies, University of Kentucky

Tuesday, 5 November 2013

**Putting Your Leadership Skills to the Test**

Active Learning Exercises with Michael Roberto

Cutter Fellow; Trustee Professor of Management at Bryant University**Agile in the API Economy**

Keynote by Israel Gat

*Fellow and Director, Cutter Agile Product & Project Management Practice**Panelists: Tom Grant, Giancarlo Succi***SMAC: Could It (or Does It) Alter the Way Your Company Does Business?**

Roundtable with Curt Hall

Senior Consultant, Cutter Consortium**Digging for Gold in the Emerging Technology Pile of Hype**

Keynote by Lou Mazzucchelli

*Cutter Fellow**Panelists: Ron Blitstein, Madge M. Meyer, Ty Vaughan***Sustainable Growth: Achieve It with Highly Motivated Teams**

Roundtable with Lynne Ellyn

Cutter Fellow**Serious Games**

Roundtable with Tom Grant

Senior Consultant, Cutter Consortium

Wednesday, 6 November 2013

**The Chief Data Officer**

Roundtable with Larissa Moss

Senior Consultant, Cutter Consortium**Designing Effective Dashboards**

Roundtable with Giancarlo Succi

Senior Consultant, Cutter Consortium**A Theory of Practice: Soft Decision-Making in the Context of a High- Pressure IT Organization**

Keynote by Tom DeMarco

Cutter Fellow

Choose a Track ►

BUSINESS TECHNOLOGY STRATEGIES TRACK

**CIO/CTO Roundtable**

Forum with Ron Blitstein

Fellow and Director, Cutter Business Technology Strategies Practice

BUSINESS & ENTERPRISE ARCHITECTURE TRACK

**Business and Enterprise Architecture**

Workshop with Dan Dixon

Senior Vice President, Wells Fargo

AGILE TRACK

**Agile Masterclass: Beyond the Basics, Beyond the Hype**

Workshop with Israel Gat* and Hubert Smits**

** Director, Cutter Agile Product & Project Management Practice; ** Senior Consultant, Cutter Consortium*

About Cutter Consortium

Cutter Consortium is a truly unique IT advisory firm, comprising a group of more than 100 internationally recognized experts who have come together to offer content, consulting, and training to our clients. These experts are committed to delivering top-level, critical, and objective advice. They have done, and are doing, groundbreaking work in organizations worldwide, helping companies deal with issues in the core areas of software development and Agile project management, enterprise architecture, business technology trends and strategies, enterprise risk management, metrics, and sourcing.

Cutter offers a different value proposition than other IT research firms: We give you Access to the Experts. You get practitioners' points of view, derived from hands-on experience with the same critical issues you are facing, not the perspective of a desk-bound analyst who can only make predictions and observations on what's happening in the marketplace. With Cutter Consortium, you get the best practices and lessons learned from the world's leading experts, experts who are implementing these techniques at companies like yours right now.

Cutter's clients are able to tap into its expertise in a variety of formats, including content via online advisory services and journals, mentoring, workshops, training, and consulting. And by customizing our information products and training/consulting services, you get the solutions you need, while staying within your budget.

Cutter Consortium's philosophy is that there is no single right solution for all enterprises, or all departments within one enterprise, or even all projects within a department. Cutter believes that the complexity of the business technology issues confronting corporations today demands multiple detailed perspectives from which a company can view its opportunities and risks in order to make the right strategic and tactical decisions. The simplistic pronouncements other analyst firms make do not take into account the unique situation of each organization. This is another reason to present the several sides to each issue: to enable clients to determine the course of action that best fits their unique situation.

For more information, contact Cutter Consortium at +1 781 648 8700 or sales@cutter.com.

The Cutter Business Technology Council

The Cutter Business Technology Council was established by Cutter Consortium to help spot emerging trends in IT, digital technology, and the marketplace. Its members are IT specialists whose ideas have become important building blocks of today's wide-band, digitally connected, global economy. This brain trust includes:

- Rob Austin
- Ron Blitstein
- Tom DeMarco
- Lynne Ellyn
- Israel Gat
- Vince Kellen
- Tim Lister
- Lou Mazzucchelli
- Ken Orr
- Robert D. Scott