Data-Driven Guidance for Product Evaluation in DevOps, SRE, IT Operations, and Business

Q2 2020

Written by Torsten Volk

www.ematop3.com
Each one of the four EMA Top 3 product categories directly aims to address key enterprise pain points that are currently preventing digital transformation success.

1. Hybrid Cloud Management
   Hybrid cloud management platforms exist to provide the governance, orchestration, automation, management, and infrastructure required for the rapid, flexible, scalable, secure, continuous, and cost-efficient delivery of products to the marketplace.

2. DevOps and Site Reliability Engineering
   DevOps and site reliability engineering (SRE) both share the same goal of enabling developers and operators to jointly and continuously deliver reliable products.

3. Application Modernization
   Application modernization solutions aim to provide a clear path to get from traditional enterprise applications to cloud-native microservices-based apps.

4. Automation
   The automation category focuses on products that enable organizations to achieve optimal scalability. At the same time, automation platforms eliminate "toiling" as one of the key problems in software development and IT.
EMAPop 3 Awards

Goal
EMA presents its EMA Top 3 awards to software products that help enterprises reach their digital transformation goals by optimizing product quality, time to market, production cost, and ability to innovate.

Perspectives
EMA derives its Top 3 product categories based on today’s critical pain points experienced by developers, DevOps professionals, site reliability engineers (SRE), IT operators, data scientists, and business staff belonging to enterprises of any size and industry.

You should read this report if...

...you want to learn from the successes and failures of your peers

...you require hard data on market trends in DevOps, IT operations, and business technology
The Five-Step Product Selection Process

The purpose of the EMA Top 3 decision guide is to present the reader with products that address the key business requirements and pain points in 2020. The EMA selection process follows these five key steps.

1. **Empirical**: EMA identified the specific key customer pain points for each one of the top challenges in DevOps, SREs, IT operations, and businesses in 2020.

2. **Strategic**: EMA evaluated how each product addresses the key pain points identified in step 1 and how it aligns with today’s most relevant technology trends.

3. **Innovative**: This criteria rewards products for breaking with legacy constraints in order to provide customers with truly innovative solutions.

4. **Customer-centric**: EMA Top 3 awards reward a product vendor’s radical focus on customer requirements instead of marketing an existing product as something new.

5. **Specific**: EMA Top 3 award-winning products address quantifiable customer pain points.

Please treat these EMA Top 3 vendor recommendations as a starting point to inform your product selection process and overall digital transformation strategy. While this report can provide valuable data-driven insights, it aims to inform, not replace, your own due diligence process.
Product Selection Criteria

Real-life use cases are the crucial link between PowerPoint and how products work in the wild. This report relentlessly focuses on identifying and clustering use cases based on direct customer observations and on the analysis of quantitative project data. While EMA aggregates and anonymizes all customer-specific data points, the EMA Top 3 evaluation process is based on real-life customer problems.

Instead of exclusively relying on EMA survey data, EMA created a data framework that enables EMA analysts to directly analyze project bottlenecks and enterprise pain points by looking at real-life project artifacts. The example shows an extract of the analysis of a collection of large-sized project failures that resulted in system outages and lost revenue. From this specific evaluation, EMA received a series of technology clusters with a high probability of being involved in a production outage. By no means does this result reveal that these technology combinations should be avoided in your next project. Instead, it helps EMA define problem areas that require further examination and deserve some additional questioning by enterprises selecting product vendors.

EMA Top 3 Product Awards - Reward for Addressing the Difficult Problems
Each EMA Top 3 award-winning product has demonstrated its direct focus on addressing today’s key pain points for software developers, DevOps teams, SREs, IT operators, and business professionals.

Example: Learning From Production Failures
The red squares on each line or column of the technology heat map reveal technology combinations that frequently occurred within the context of the failure of cloud-native applications.

The chart is based on a correlation algorithm applied to the “Kubernetes Failure Stories” collected on GitHub (https://github.com/hjacobs/kubernetes-failure-stories, query run on May 28, 2020, 9:44AM MT).
Accelerating Digital Transformation

Data, technology, management, agility, innovation, and user experience are the six most prevalent themes discussed within the context of digital transformation. While the first four themes describe the core requirements for digital transformation, the final two represent the critical success metrics of the digital transformation process.

Top 10 Digital Transformation Topics in 2020

This bar chart is based on the semantic analysis of all 973 discussion threads of the subreddit on digital transformation on Reddit.com (r/digitaltransformation) scheduler.

Source: r/digitaltransformation (May 27, 2020, 9:12 AM MT); X-axis = percent of threats including the respective topic named on the Y-axis.
Accelerating Digital Transformation

This chart walks through the most discussed topics within a digital transformation context in 2020. The x-axis shows the quantity of the overall discussion threads occurring in the reddit.com forum (subreddit) for digital transformation, while the y-axis measures the degree of public interactions with each topic.

1. Customer requirements: Digital transformation is all about enabling the entire organization to understand customer requirements better and earlier than the competition. Therefore, “data” is the most discussed topic within the digital transformation context.

2. Importance of technology: Technology is critical for digital transformation, as long as it is focused on leveraging data to understand the target market.

3. Optimizing customer experience: Data, technology, and market knowledge build the foundation for providing a superior customer experience.

4. Agile development: Market and customer knowledge enables organizations to optimally use agile software development approaches for innovation that is relevant to the customer.

Source: r/digitaltransformation (May 27, 2020, 9:12 AM MT)
Venture Capital

The 987 rounds of venture capital and private equity investments into technology-related ventures over the previous 12 months amounted to $13B and focused on two overarching themes: platforms and data.

The analysis of complete investment data for the past 12 months leads to the following seven key findings. The number of each key finding corresponds to the number of a red dot on the topic map, allowing readers to follow EMA’s reasoning by looking at topic context distilled through the application of standard clustering algorithms to the set of 987 investment rounds.

**Key Findings:**

1. **Platforms rule:** The platform concept is based on creating a centralized software system that enables the entire organization to seamlessly work toward the same set of business goals.

2. **Platforms connect:** Platforms tie the organization and its customers together by facilitating direct interaction and continuous feedback loops.

3. **Platforms as SaaS and mobile:** Enterprises require platforms to be delivered as SaaS and to provide staff and customers with a mobile frontend.

4. **Situational context data:** In order for platforms to enable seamless collaboration, they need to provide each staff role with a continuous stream of situational context.

5. **Vertical context:** Data-driven insights are often specific to individual verticals. Healthcare, logistics, and financial services-related solutions have received the most funding over the previous 12 months.

6. **Artificial intelligence and machine learning:** The overarching topics that continuously enhance the impact of platforms and data.

7. **Cybersecurity:** When enterprises are connected directly to customers via data-driven platforms intuitively, cybersecurity becomes a critical topic.

**Source:** crunchbase.com dataset, including details for the 987 technology-related venture capital and private equity investments over the previous 12 months.
Harnessing the capabilities of open-source projects is critical for commercial software offerings. Currently, the CNCF landscape includes 738 vendors (and supporting organizations) that offer a total of 1,395 products in 9 categories and 38 subcategories.

The joint metrics for these products and projects demonstrate the potential value for enterprises to tap into when leveraging open-source software.

- 2,208,453 stars on GitHub
- $82B in funding
- 71,361 individual contributors

Flexibility and choice are great advantages of today’s cloud-native universe, but at the same time, they can become a curse for enterprises looking for unified and consistent operations management for their infrastructure, data services, and applications. Applying the same policies in terms of compliance, security, performance, cost, and availability to these heterogeneous environments has proven difficult for many organizations, leading them to look for a better handle on SLAs and SLOs within their modernized environments.
This tree chart groups together the CNCF subcategories of projects and sizes each individual project proportional to the number of GitHub stars received.
4 EMA Top 3 Product Categories

EMA research identified four key product categories for developers, DevOps, SRE, IT operations, data scientists, and business decision-makers in 2020. EMA created these categories based on the research approach outlined in the first part of this report.

Application Modernization
Application modernization solutions aim to provide a clear path to get from traditional enterprise applications to cloud-native, microservices-based apps while preserving the ability to run both types of applications side by side.

Hybrid Cloud Management
Hybrid cloud management platforms provide the governance, orchestration, automation, management, and infrastructure services required for the rapid, flexible, scalable, secure, continuous, and cost-efficient shipment and operations of software products.

Automation
The automation category focuses on products that enable organizations to achieve optimal scalability, speed, and flexibility for their product offerings. All of these automation platforms aim to eliminate "toiling" as one of the key reasons for decreasing staff motivation.

DevOps and Site Reliability Engineering
DevOps and site reliability engineering (SRE) both share the same goal of bringing together developers and operators to continuously and incrementally deliver reliable products to the customer.
Top 3 Categories and Subcategories

- Cost and Compliance Optimization
- Enterprise Data Services
- Managed Hybrid Kubernetes
- Hybrid Cloud Management
- End-to-end Management Platforms
- Hyperconverged Infrastructure
- AIOps
- Consistent Observability
- Continuous Compliance and Security for Kubernetes
- DevOps and SRE
- Continuous Reliability
- Centralized Policy Management and Consistent Runtime
- Infrastructure and Compliance as Code
- Application Modernization
- DevOps Automation
- Policy-as-Code
- Automation
- Consistent Observability / Observability as Code
- Stateful Applications
The EMA Top 3 product categories in the Hybrid Cloud Management section of this report aim to enable enterprises to optimally take advantage of the different capabilities, cost structure, security characteristics, compliance frameworks, performance, and reliability of data center technologies and public cloud services.

**EMA Market Rating**

**Market Metrics**
Number of vendors: 428  
Number of funding rounds: 506  
Total funding amount: $2.6B  
Total number of jobs listed on…Indeed: 4,850  
…LinkedIn: 5,461

**Top 5 Google Search Queries**
What is hybrid cloud?  
1. What are the differences between private cloud, public cloud, community cloud, and hybrid cloud?  
2. Why hybrid cloud?  
3. What is hybrid cloud storage?  
4. What is hybrid multi-cloud?  
5. What role does private cloud play?

**Top 5 Questions Received by EMA**
1. What is the difference between hybrid cloud and multi-cloud?  
2. What is the share of applications that are still in the data center?  
3. How much adoption do you see for Google Anthos, Amazon Outposts, and Azure Stack?  
4. Which workloads will always stay on-premises, if any?  
5. What is the impact of hybrid cloud architecture on core storage services?

**EMA Top 3 Product Categories**

**End-to-end management platforms:** Policy-driven automation, orchestration, and governance platforms.

**Managed hybrid Kubernetes:** Managed hybrid Kubernetes clusters for data center and public clouds.

**Cost and compliance optimization:** Continuous application-centric rightsizing and configuration of cloud and data center infrastructure.

**Hyperconverged infrastructure for hybrid cloud:** Universal hybrid cloud infrastructure for optimal consistency across clouds.

**Enterprise data services:** Unified data services to simplify application use across clouds.

**In a Nutshell**
In 2020, an estimated 80% of enterprises have adopted a combination of data center infrastructure and public cloud services to run production applications. These same enterprises are now struggling to control the cost and risk that come with this rapid adoption of hybrid cloud technologies. EMA identified the five product categories enterprises need to look at when aiming to optimally deploy, govern, and operate their hybrid cloud.
Prevent having to hire specialists to operate Kubernetes infrastructure on-premises and in the private and public cloud.

Save developer time by eliminating the need to write infrastructure-specific code for app deployment and day-2 management.

Category
Hybrid Cloud Management:
Managed Hybrid Kubernetes

Business Value

Key Advantages

Unified cloud control plane for Kubernetes clusters in the corporate data center and in public clouds.

Fully managed Kubernetes patches, upgrades, and maintenance.

Support for AWS, Azure, Google Cloud, VMware, RHEL, and bare-metal infrastructure.

Unified API, CLI, and UI for developer self-service, application, and platform operations.

Unified DevOps automation and control across data center and public cloud.

Spectro Cloud

Website: www.spectrocloud.com

GitHub: https://github.com/spectrocloud

EMA Top 3 Award Winner
Hybrid Cloud Management: The Need for Unified Operations

While most enterprises have started their digital transformation process by adopting cloud-native application architectures, digital transformation has often stalled when it comes to modernizing business-critical applications that cannot be easily containerized due to concerns in terms of compliance, security, availability, reliability, data protection, cost, and performance.

When selecting the EMA Top 3 products for hybrid cloud management, EMA focused on solutions that address this list of concerns by providing a unified platform to consistently deploy, manage, and operate traditional and distributed applications across all of the customer’s favorite cloud technologies.

The chart shows how enterprises connect their favorite services from multiple clouds. This often creates a spiderweb of technology clusters that needs to be managed side by side (chart source: EMA; data source: stackoverflow.com, 50,000 posts related to AWS, Azure, and Google Cloud).
Hybrid Cloud Management: Quantifying Complexity

141 Certified Kubernetes Service Providers

47 Databases

35 Continuous Integration & Delivery

33 Security and Compliance

27 App Def. & Img Build

27 Streaming & Messaging

44 Cloud-Native Storage Solutions

25 Automation & Config.

17 Logging

17 Service Proxy

13 API Gateways

43 Certified Hosted Kubernetes

23 Cloud-Native Networking

N/A

12 Key Management

12 Tools

11 Tracing

57 Monitoring

19 Hosted Platforms

12 Container Services

12 Container Registries

7 Chaos Engineering

56 Certified Kubernetes Distributions

18 Certified Kubernetes Installers

12 Container Runtimes

6 RPC

41 Kubernetes Training Partners

10 Frameworks

10 Service Mesh

8 Schedulers

13 Container Services

12 Container Registries

12 Container Runtimes

27 Installable Platforms

13 Hosted Platforms

14 Service Proxy

10 Hosted Services

12 Key Management

12 Tools

7 Chaos Engineering

Number of total permutations: 5,695,316,011,810,870,000,000,000,000,000,000,000,000

Data source: CNCF interactive landscape (https://landscape.cncf.io/)
There are currently 2,316 Python libraries related to AWS, Azure, and Google Cloud that developers download approximately 13M times per day to 112 different, mostly Linux-based, operating systems. When drilling into how these libraries are used, EMA found that developers are typically leveraging numerous different ones for each of their projects.

While individual projects typically stay within the boundaries of a single cloud, EMA also sees an increasing number (approximately 10%) of projects stretching across multiple clouds. The rapid growth of microservices increases this trend and at the same time emphasizes the urgent need for a unified governance and management layer for both developers and IT operators to contribute to optimizing release efficiency and operational reliability at the same time.

Data Source: pypi.com: data collected on May 30, 2020, 9:34AM. n=12,399,676M library downloads during a 24 hour period for the search terms “AWS”, “Azure”, “Google Cloud”. Word cloud showing the name of each library sized proportionally to the number of daily downloads.
Hybrid Cloud Management: SAP Management Challenges

The chart visualizes the numerous cloud and container runtime-specific challenges IT operators have faced over the previous 18 months when deploying and operating SAP applications on AWS, Azure, and Google Cloud environments. This example demonstrates the importance of a unified operations layer for enterprises to ensure consistent operations of their business-critical software platforms.

Data Source: Full sample of SAP-related posts by IT administrators that included the term “SAP.” Time of sample: June 12, 9:32AM MT.