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Analyze the Future

IDC FUTURESCAPE

WORLDWIDE CLOUD 2016 PREDICTIONS

APEJ Implications

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IN THIS STUDY

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This IDC study provides IDC's top 10 Asia/Pacific (excluding Japan), or APEJ, predictions for the 2016 IT buyers when it comes to understanding and investing in their own datacenter facilities and staff as well as SaaS and cloud infrastructure services offered by third-party service and network providers. These predictions provide the strategic context to enable APEJ enterprises to consider the overall impact of developments such as the digitalization of the economy cloud, shifts in populations and business activities, software-defined compute, and cloud storage. This document offers IDC worldwide and APEJ analysts' collective understanding of major industry transitions and advice to IT buyers to consider in their strategic planning in relation to sourcing, consuming, and managing their internal and public (provider based) cloud services, as they grow and mature in the cloud world. We advise decision makers to approach each prediction in three steps:

- **Assess its relevance:** Should I pay heed to this prediction? Does this prediction apply to me? Can I reasonably enough ignore it? What do I risk if I ignore it? Strategy is, after all, as much about what you decide to do as what you decide not to do.
- **Assess its urgency:** Does this prediction apply to me now or in the future? If it applies in the future, when do I have to get started to deliver enabling capabilities as needed?
- **Assess its resource requirements:** What resources do I need and at what costs? What would I have to forego or postpone to achieve the capability? What do I have to speed up to achieve it? What priority does this prediction have relative to other projects consuming resources?

In the following pages, Figure 1 presents IDC's cloud top 10 predictions in terms of their likely impact across the enterprise and the time it will take for the predictions to reach mainstream. By mainstream, IDC means the broad middle of the bell curve of adoption (i.e., the 40–60% of enterprises that are neither the first movers and early adopters nor the last to act). Each bubble's size provides a rough indicator of the complexity and/or cost an enterprise will incur in acting on the prediction.

IDC FutureScape

WORLDWIDE CLOUD 2016: PREDICTIONS APEJ IMPLICATIONS

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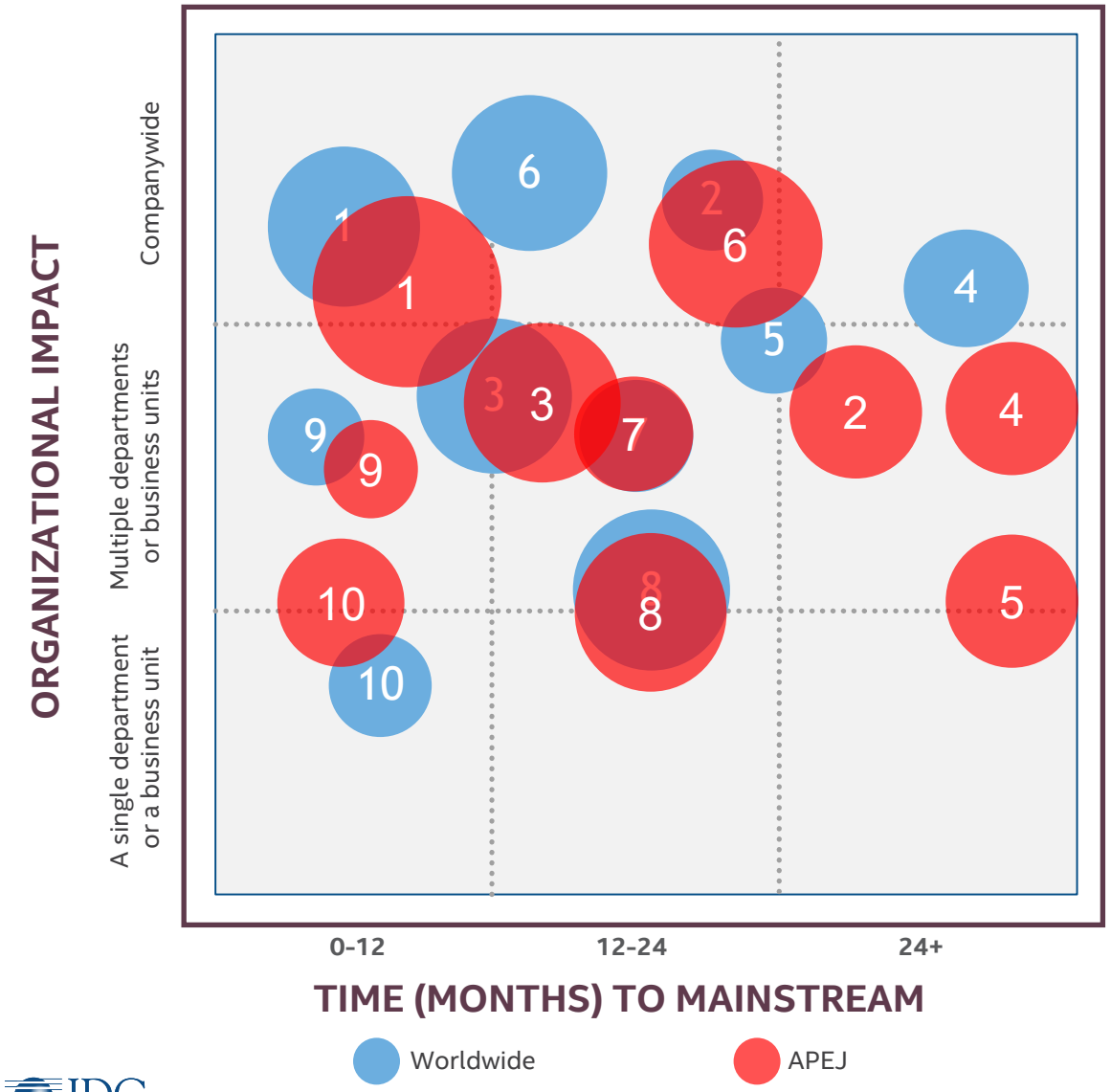

1. Hybrid Cloud — More Than **65%** of Enterprise IT Organizations Will Commit to Hybrid Cloud Architectures by 2017, Vastly Driving the Rate and Pace of Change in IT Organizations
2. By 2019, Industry Cloud Creation Will Be Viewed as the Top Market Entry Strategy for Both Technology Providers and Industrial Companies Alike, as IT Leaders and Industry Domain Experts Join to Tear Down Traditional Barriers to Entry
3. Cloud Core — By 2018, At Least **40%** of IT Spending Will Be Cloud-Based — Reaching **45-50%** of All IT Infrastructure, Software, Services, and Technology Spending by 2020
4. Workload-Centric Management — By 2017, **50%** of Enterprise IT Organizations Building Hybrid Clouds Will Purchase New or Updated Workload-Centric Cloud Management Solutions
5. By 2018, Cloud Will Become a Preferred Delivery Mechanism for Public Data, Information, and Analytics, Increasing Public Information Consumption by 150% and Paving the Way for Thousands of New Industry Applications
6. Diversified IT — By 2020, 60% of Companies' IT Assets Will Be Offsite in Colocation, Hosting, and Cloud Datacenters while ¼ of IT "Staff" Will Be Re-Badged to Third-Party Service Providers
7. Open Becomes a Mandatory Cloud Evaluation Criteria — By 2017, Over 60% of Enterprises Will Embrace Open Source and Open APIs as the Underpinning Cloud Integration Strategies
8. DevOps Adoption Matures — By 2018, Over 60% of New Delivery and Cloud-Native Application Architectures Will Enable Faster Innovation and Business Agility
9. Skills and Staffing — By 2017, There Will Be a 15% Shift of IT Budget Away From Traditional In-House IT delivery, as Organizations Use More Third-Party Service Providers to Fill Cloud-Related Skills Gaps
10. By 2018, 25% of Global Enterprises Will Have Service Providers from Asia/Pacific as Part of Their Cloud Ecosystem

Note: The size of the bubble indicates complexity/cost to address. Source: IDC, 2015

PREDICTION #1: HYBRID CLOUD

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MORE THAN 65% OF ENTERPRISE IT ORGANIZATIONS WILL COMMIT TO HYBRID CLOUD ARCHITECTURES BY 2017

IT IMPACT

- Shift to an automated, policy-based, services-oriented approach to IT delivery
- The need for integration between clouds and with legacy and other applications forces new attention on IT architecture.
- Increased investment in vendor and financial management processes and skills for IT sourcing
- LOB selection of cloud vendors for diversified application platforms from pre-qualified supplier list

BU IMPACT

- Broad choice of solutions based on hybrid cloud architectures can provide increased business value but also make selection and implementation more challenging.
- BU managers or their SI/ISV partner will need to align closely with the IT strategic plan and architecture to ensure maximum enterprise benefit from LOB IT investments.
- BU managers will be initial targets of hybrid cloud solution providers, and will require new levels of IT skills in their organization to assess suitability of solutions and capability of providers.

ESSENTIAL GUIDANCE FOR TECH BUYERS

- Work with hybrid cloud as the de-facto IT architecture model.
- Significant attention required to overhaul IT architecture
- Investment required for enterprise asset management (EAM) tools and audit exercises to plan and manage hybrid cloud.
- Revisit existing internal service delivery matrix and determine ability to manage SLAs.
- Continuously assess workload deployment cost and performance against business requirements.

PREDICTION #2: INDUSTRY CLOUD

IDC FutureScape

BY 2019, INDUSTRY CLOUD CREATION WILL BE VIEWED AS THE TOP MARKET ENTRY STRATEGY FOR BOTH TECHNOLOGY PROVIDERS AND INDUSTRIAL COMPANIES ALIKE

IT IMPACT

- Entire enterprise IT requirements can be sourced from industry cloud(s).
- IT becomes an innovation cell for business
- New business model evaluation requires CIO reskilling on DX business measures
- New, non-IT vendors will enter the market
- Need for high level of maturity in service brokerage models
- Broadened partnerships and engagement models with cloud ecosystem
- Master-cloud development at global scale leading to higher adoption of software-defined architectures

BU IMPACT

- Entire solution stacks, from infrastructure to governance, can be sourced from an industry cloud.
- Immediate access to best or better industry processes
- Compliance requirement of service management outsourced to industry cloud
- Open collaboration across peer group
- Lower costs

ESSENTIAL GUIDANCE FOR TECH BUYERS

- Create an incubation framework for new business models based on an IT architecture that facilitates integration of open, hybrid cloud solutions.
- Upgrade sourcing practices to include new ecosystems that deliver specific services.
- Efficient delivery will require integration and flexibility; open source and software-defined technology will be essential.
- Build a wide scale of open APIs available through public and corporate distribution.
- Work with an ecosystem of upstream cloud service and technology partners for core IT architecture resilience.

PREDICTION #3: CLOUD CORE

IDC FutureScape

BY 2018, AT LEAST 40% OF IT SPENDING WILL BE CLOUD-BASED — REACHING 45–50% OF ALL IT INFRASTRUCTURE, SOFTWARE, SERVICES, AND TECHNOLOGY SPENDING BY 2020

IT IMPACT

- All new application functionality will be delivered via a cloud model.
- A 'cloud first' approach to all IT deployment and service delivery becomes necessary.
- The importance of the enterprise IT architecture must be conveyed to the LOBs.
- The number of cloud partners will increase to a minimum of 10 different providers
- Legacy applications will migrate to hosted private clouds
- "IT as a service" becomes the standard enterprise IT model, with federation of LOB shadow IT groups

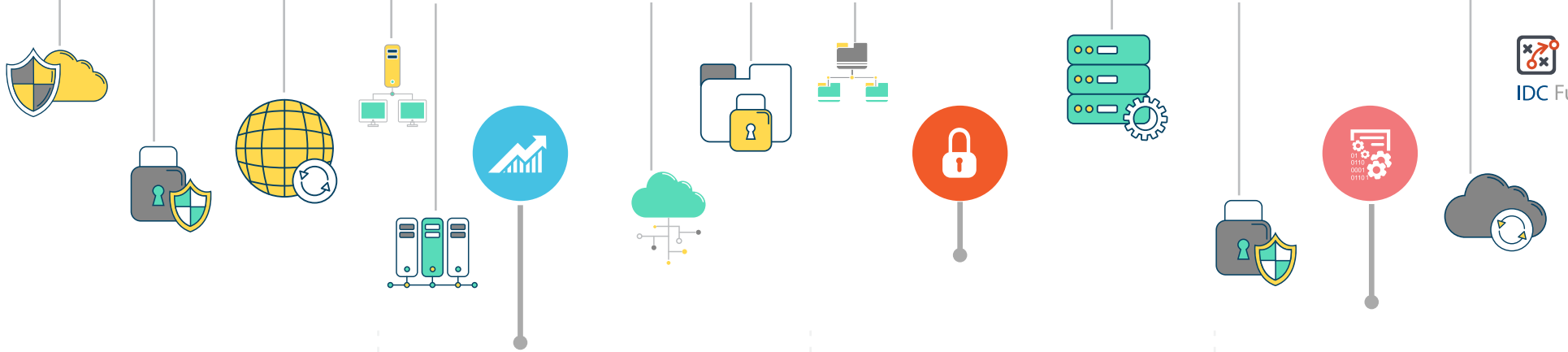
BU IMPACT

- Sourcing practices will evolve to include sourcing on behalf of IT.
- Understanding of IT application and infrastructure architecture becomes a necessity.
- Breadth of choice will become overwhelming unless prospective suppliers are filtered through an architectural framework.
- The LOB's 'ITQ' becomes the measure of its success.

ESSENTIAL GUIDANCE FOR TECH BUYERS

- Build IT capability within LOB to enable conversations between cloud providers and business and IT stakeholders.
- Work toward building a consistent services catalogue for LOB.
- Offer a repository of DevOps tools that can leverage APIs, artifacts and gain access to pre-determined rate contracts.
- Constantly evaluate new capabilities available through third-party clouds.
- Financial management of cloud and charge back should be well engrained into IT processes.

PREDICTION #4: WORKLOAD-CENTRIC MANAGEMENT



IDC FutureScape

BY 2017, 50% OF ENTERPRISE IT ORGANIZATIONS BUILDING HYBRID CLOUDS WILL PURCHASE NEW OR UPDATED WORKLOAD-CENTRIC CLOUD MANAGEMENT SOLUTIONS

IT IMPACT

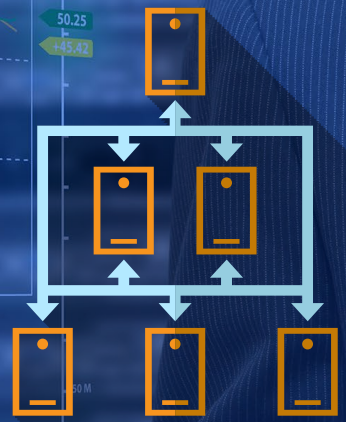
- Emphasis on workload performance requirements and enhancements over time leads to optimized architecture and SLA models for specific workloads.
- Workload-specific cloud orchestration and federation leads to multiple management tools being deployed, requiring a 'manager of managers' strategy to incorporate both internal and externally sourced services.
- The workload/infrastructure combination will be determined by the provider; IT has to adapt its architecture to suit the preferred suppliers.
- Core workloads will use "integration as a service" delivered by cloud brokers or aggregators. This will be a common feature of industry clouds.

BU IMPACT

- LOB managers need to define new management metrics for service management focused on workload, not infrastructure.
- BCDR plans need to be readdressed as existing policies will be unable to support workload specific requirements
- Need to have service management specialists that have in-depth understanding of workload performance and management.
- Specialized resources will be required in LOB teams to work with business users and IT operations team for ensuring smooth operations for processes that are subject to regular changes/ enhancements.

ESSENTIAL GUIDANCE FOR TECH BUYERS

- The architecture of these solutions will be dictated by the provider, so the optimized, workload-centric solutions must be selected based on architectural compliance as well as business suitability.
- Change BCDR plans based on workload performance metrics and pre-built redundancy for performance and security.
- Invest in service management specialists from the industry or train internal resources – so that they are able to manage a hybrid sourcing environment.
- Transition resources from internal IT teams to LOB as SPoC for workload and business process management and support.



PREDICTION #5: PUBLIC DATA AND ANALYTICS

IDC FutureScape

BY 2018, CLOUD WILL BECOME A PREFERRED DELIVERY MECHANISM FOR PUBLIC DATA, INFORMATION, AND ANALYTICS, INCREASING PUBLIC INFORMATION CONSUMPTION

IT IMPACT

- Ongoing concerns about the security, compliance, and data privacy with cloud-based solutions can only be solved through building data governance and inclusion frameworks and communicating their importance to LOBs.
- Application and infrastructure architectures and systems of engagement workloads need to have pre-configured APIs that can ingest high volumes of external data (in motion) and leverage external compute and storage resources.
- In-built analytics becomes a must-have feature for SaaS-based infrastructure and application performance management tools. Higher adoption of Big Data tools such as Hadoop and MapR will be pre-configured into the business solution.

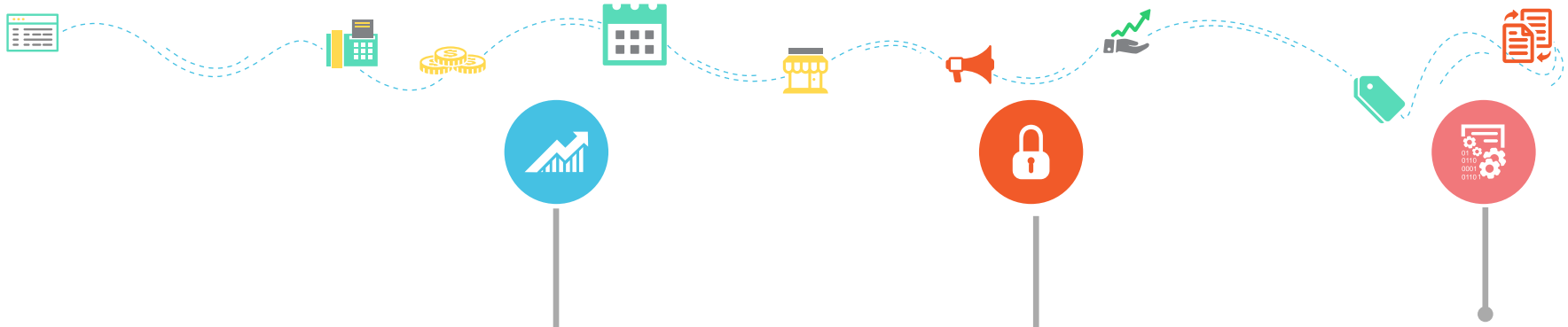
BU IMPACT

- New sources of data can be used to enhance understanding of the business.
- Responsibility of maintaining data compliance devolves to the LOB.
- The ability to integrate data inputs into enterprise analytics tools becomes a deciding factor in selection.
- New classes of enterprise assets to manage
- Potential for new sources of income through sale of value-added data

ESSENTIAL GUIDANCE FOR TECH BUYERS

- Identify sources of internal and external data that can be used to enhance business processes and decision making.
- Build hybrid data-marts on highly secure and resilient hybrid cloud platforms sourced from the most appropriate provider.
- Work with an ecosystem of open API providers for use of public data (government and social) as well as ecosystem data for industry use.
- Overhaul asset management practices to include data assets.
- Place emphasis on micro vertical applications for niche workloads.

PREDICTION #6: DIVERSIFIED IT



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BY 2020, 60% OF COMPANIES' IT ASSETS WILL BE OFFSITE IN COLOCATION, HOSTING, AND CLOUD DATACENTERS WHILE 25% OF IT "STAFF" WILL BE EMPLOYEES OF EXTERNAL SERVICE PROVIDERS

IT IMPACT

- Focus shifts to co-management of IT resources within defined service-based relationships with hosters, cloud service providers, and datacenter companies
- Internal IT staff is supplemented with resources from external service providers to address gaps in service management and orchestration capabilities.
- Internal resources are redirected to a strategic architecture design team, service management, and business support for orchestration of IT resources sourcing and use.

BU IMPACT

- The connection between technology and business becomes further abstracted.
- Primary contact for end users within the LOB will be the service desk. The source of the IT-enabled business service is invisible.
- BU managers learn to focus on solutions and allow the CIO to ensure architectural compliance.
- More best-practice solutions will be used, at lower cost.

ESSENTIAL GUIDANCE FOR TECH BUYERS

- Build a central governance structure for vendor sourcing, management, and commercial management.
- Overhaul asset management processes.
- Work with vendors that have a strong ecosystem that connects with other ecosystems, aligns with your strategic architecture and select solutions based on their ability to offer workload-specific solutions within that framework.
- Evaluate service providers on their business and services road map to determine alignment with your future requirements.

PREDICTION #7: OPEN IS STANDARD PRACTICE

BY 2017, OVER 60% OF ENTERPRISES WILL EMBRACE OPEN SOURCE AND OPEN APIs AS THE UNDERPINNING CLOUD INTEGRATION STRATEGIES

IT IMPACT

- Integration of applications and services via open APIs becomes a key capability.
- Open source infrastructure automation capabilities will lead to adoption of open source tools for net new applications.
- LOBs will take lead over IT for open source projects.
- Open API repositories and pre-configured or automated containers will be sought after.
- Issues with infrastructure and automation resilience will lead to higher support from SI firms supporting OpenStack and/or Cloud Foundry.

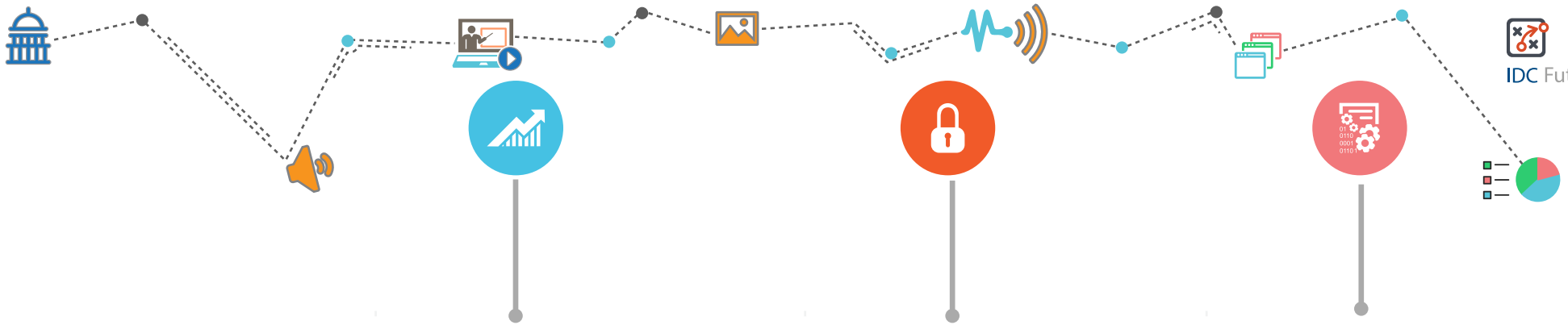
BU IMPACT

- Component-based solutions using open APIs should be embraced as business enablers rather than as being riskier than traditional, single-vendor suites.
- LOB IT specialists must have knowledge of APIs and their uses.
- Adherence to enterprise architecture is mandatory.
- Attention to security and governance must increase.

ESSENTIAL GUIDANCE FOR TECH BUYERS

- Evaluate open source capabilities of existing suppliers.
- Create a parallel set of partners that have experience in open source SI capabilities.
- Reconsider application distribution across existing systems vs open source systems.
- Have a different BCDR plan for open source projects, with higher provisioning for meeting RTO/RPO.
- Build strong automated testing and agile development capabilities for open source application to be deployed on cloud environments.

PREDICTION #8: DEVOPS MATURES



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BY 2018, OVER 60% OF NEW APPS WILL USE CLOUD-ENABLED CONTINUOUS DELIVERY AND CLOUD-NATIVE APPLICATION ARCHITECTURES

IT IMPACT

- Cultural challenges as CIOs turn to executive leadership for funding investments in DevOps tools and achieving buy-in from an organizational structure perspective
- Assessment of existing application development and management tools shows a major deficit in existing capabilities, leading to preferred sourcing of externally hosted cloud DevOps tools.
- Container-based implementations using technology such as Docker can quickly provide large cost savings from consolidation similar to the benefits hypervisors provided over bare metal.

BU IMPACT

- Expect widespread efficiency dividends from cost-effective and speedy application deployment, migration, scale up, and updates.
- Not all applications will benefit immediately – initial work is being done for Linux but is being extended to Windows and Unix.
- Containerization in your supplier ecosystem will not be uniform, leading to possible changes of strategy or supplier.

ESSENTIAL GUIDANCE FOR TECH BUYERS

- Adopt DevOps discipline for specific LOB workloads that are deployed on hybrid cloud architecture.
- Expect and plan for significant reskilling and rehash of the IT organization to bring in more business analysts, scrums.
- Build an internal repository of artifacts and APIs.
- Look to shorten develop-deploy-impact – feedback cycles to drive user behavior and competitive advantage.

PREDICTION #9: SKILLS AND STAFFING

BY 2017, THERE WILL BE A 15% SHIFT OF IT BUDGET AWAY FROM TRADITIONAL IN-HOUSE IT DELIVERY, AS ORGANIZATIONS USE MORE THIRD-PARTY SERVICE PROVIDERS TO FILL CLOUD-RELATED SKILLS GAPS

IT IMPACT

- Specialist skills for architects, DevOps, service management, business analysts, open source, automation and financial management are key but scarce capabilities; IT organizations will fill skills gaps through reliance on external suppliers.
- Several of these skills will only be engaged on project basis and therefore IT organizations will need to find a provider that has a bench based on a retainer model.
- This will lead to increased use of ITSMaaS and SIaaS providers.

BU IMPACT

- While LOBs will build broad IT capability to support their specific needs, a LOB focus on service delivery will be most common.
- LOB procurement managers will need to assess solutions based on embedded skills and services, as well as the value of any skills transfer during the project.
- Unavailability of key skills within desired time frames may rule out some solution choices.

ESSENTIAL GUIDANCE FOR TECH BUYERS

- Using the business strategy road map, set resourcing plan with HR (talent management and recruitment divisions) to implement a technical skills road map.
- Explore external options outside the core vendor community through open innovation projects and incubation projects for new skills.
- Leverage specialist vendors for supplementing specific skills (such as DevOps).
- Ensure constant internal training and build progression and succession plans for internal staff.

PREDICTION #10: EAST-WEST

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BY 2018, 25% OF GLOBAL ENTERPRISES WILL HAVE SERVICE PROVIDERS FROM ASIA/PACIFIC AS PART OF THEIR CLOUD ECOSYSTEM

IT IMPACT

- Multiple contracts for cloud solutions at varying price points will require advanced vendor management and financial management skills to ensure predictability of cost and performance, and visibility into operational ownership.
- Maintenance of compliance levels becomes a significant overhead and must be priced into the cost of the service.
- Data residency regulations that mandate use of in-country cloud providers will create a need for multiple, secure interconnects that lead to potential service management issues.
- Business continuity plans will need to be revalidated and tested regularly.

BU IMPACT

- Increased maturity of APEJ cloud service providers allows more choices at potentially lower cost.
- Government policy may, for government entities, dictate the use of local services where available – even if not the preferred solution.
- For MNCs, global sourcing contracts may need alteration to suit local hosting.

ESSENTIAL GUIDANCE FOR TECH BUYERS

- Gain visibility into any Asia/Pacific expansion plans to understand in which country markets your business requires local cloud service providers.
- Segment cloud service providers based on alignment with core IT solution providers to existing workloads versus those that are focused on open source architectures.
- Look to lower cost of application development and deployment by exploring local PaaS offerings instead of using global contracts.

ABOUT IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

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