

IDC MarketScape

IDC MarketScape: Canadian Cloud Professional Services 2021 Vendor Assessment

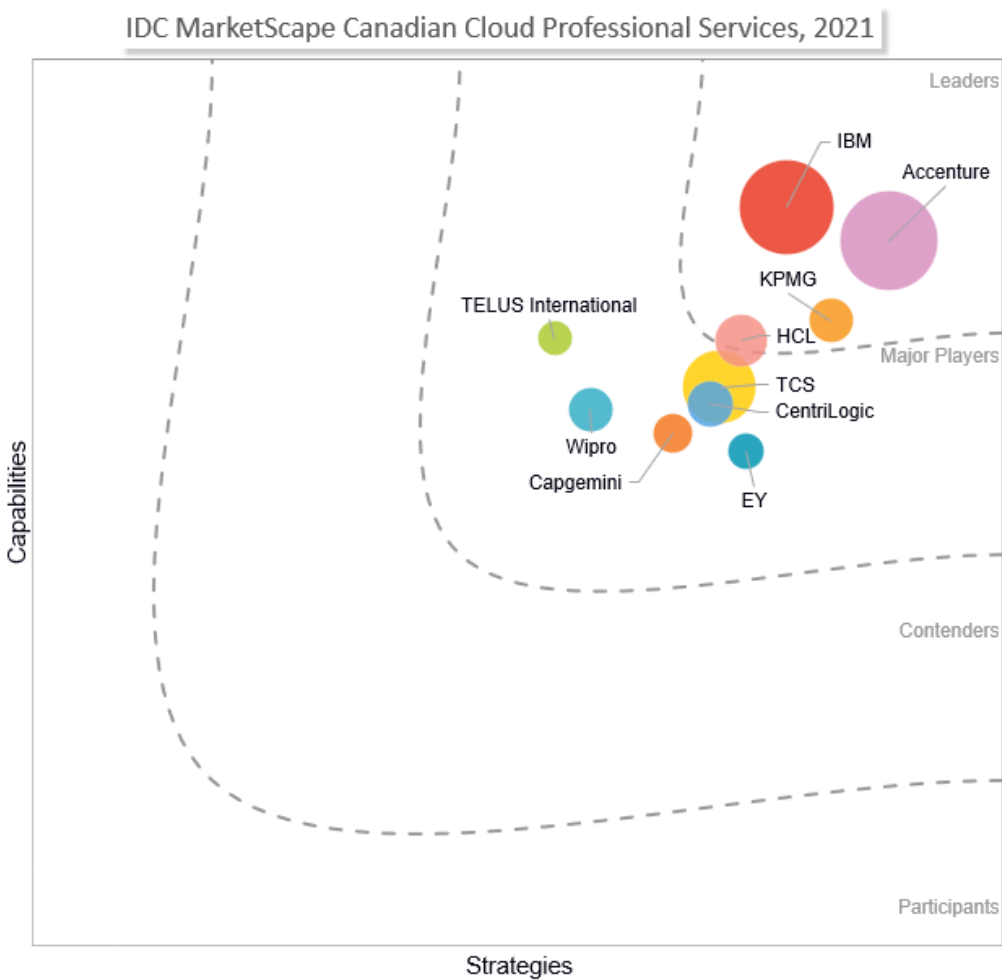
Jason Bremner

THIS IDC MARKETSCAPE EXCERPT FEATURES HCL

IDC MARKETSCAPE FIGURE

FIGURE 1

IDC MarketScape Canadian Cloud Professional Services Vendor Assessment



Source: IDC, 2021

Please see the Appendix for detailed methodology, market definition, and scoring criteria.

IN THIS EXCERPT

The content for this excerpt was taken directly from IDC MarketScape: Canadian Cloud Professional Services 2021 Vendor Assessment by Jason Bremner (Doc # CA46215320). All or parts of the following sections are included in this excerpt: IDC Opinion, IDC MarketScape Vendor Inclusion Criteria, Advice for Technology Buyers, Vendor Summary Profile, Appendix and Learn More. Also included is Figure 1.

IDC OPINION

This IDC study represents a vendor assessment of IT services firms providing cloud professional services in the Canadian market through the IDC MarketScape model. It covers a variety of vendors including global systems integrators and Canada-based firms. This research is a quantitative and qualitative assessment of many characteristics that buyers consider when selecting a cloud professional services provider. More Canadian organizations are adopting and expanding the use of cloud services than ever before to build infrastructures that support digital operations. A component of this evaluation is the inclusion of the perceptions of 294 IT buyers from organizations of both the key characteristics and the capabilities of the provider evaluated. The IT buyers were sampled from organizations with more than 100 employees across Canada and a cross section of industries in March 2020. Key findings from the evaluation include:

- Vendors are using similar strategies to grow their cloud practices. All are investing in employee development, increasing their consulting staff, and leveraging cloud-native technologies and methodologies. Many are expanding their capabilities via acquisition in Canada and globally. The resulting effect for IT buyers can be hard to distinguish between vendors when selecting a provider for a project. As such, IDC advises IT buyers to add new insights to your vendor selection process. Use this IDC MarketScape as a tool not only to short-list vendors that appear to meet your needs but also to investigate how a vendor is building on the strengths identified and how it is addressing its challenges.
- There are many vendors active in the cloud professional services space in Canada today. This IDC study assessed vendors that met the four inclusion criteria noted in the IDC MarketScape Vendor Inclusion Criteria section. However, there are many more vendors that IT buyers may wish to consider when procuring cloud professional services as an individual vendor may have the specific expertise required for the project. Some of them are listed in the Vendors to Watch section of this study. IDC advises IT buyers to balance their requirements for best-of-breed expertise and general expertise when selecting a cloud professional services provider. Having a clear cloud strategy and road map for digital transformation (DX) will help decision making on this issue.

IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

The scope of this IDC MarketScape includes providers that offer project-based IT services that support clients' use of private and hybrid cloud computing environments and public cloud services, specifically infrastructure as a service (IaaS) and platform as a service (PaaS). IDC considered more than 35

vendors of such offerings in Canada to be included in this IDC MarketScape. For inclusion in this IDC MarketScape, the vendor had to meet four criteria:

- Should be listed as having official consulting and/or integration partner status in the online partner directory of one or more of the following public cloud service providers: Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP), and IBM Cloud.
- Have an active Canadian go-to-market presence for cloud professional services (i.e., project based).
- Earn more than C\$10 million in revenue annually from cloud professional services from Canadian clients.
- Have a minimum of 50 full-time, billable resources for cloud professional services located in Canada and serving Canadian clients.

ADVICE FOR TECHNOLOGY BUYERS

The year 2020 is history and its historical significance will be felt for many decades to come. The COVID-19 pandemic revealed that organizations that had moved early into digital transformation to deliver digital products and services or use digital processes fared much better in the economy than their peers that shifted slowly to digital. In the early days of the pandemic, IDC found that public cloud adoption had become mainstream after years of growing adoption. In March 2020, IDC surveyed Canadian organizations (with more than 100 employees) and found half of them had adopted PaaS and one-third of them had adopted IaaS. The pandemic drove new adoption of cloud services to ensure organizations' applications and data were accessible anytime and anywhere in a secure and scalable manner. In September 2020, IDC asked Canadian organizations how had their cloud strategy changed because of COVID-19 and found 35% of them were moving applications to the cloud for better security and reliability, 28% of them were investing in cloud data management for enhanced utility and insight, and 26% of them were using cloud as a platform for digital innovation.

While cloud adoption has steadily grown, cloud maturity among Canadian organizations has not kept pace. At the beginning of the pandemic, 52% of Canadian organizations with more than 100 employees were still in the two lowest levels of IDC's cloud maturity model, 26% had matured to the third level (out of a total of five levels), and 22% had achieved the highest two levels. Interestingly, since IDC started monitoring cloud maturity among Canadian organizations in 2014, 40-50% of Canadian organizations consistently aspired to reach the highest levels of cloud maturity in three years. However, they never achieved their aspirations. IDC believes major factors underlying this situation were internal cloud skills and technical debt of IT investments. Before the pandemic, IDC's research found that roughly one in three Canadian organizations with more than 500 employees had strong internal skills in assessing which workloads to move to the cloud, skills in migrating those workloads to the cloud, and managing those cloud workloads effectively. In addition, technical debt of refactoring or re-architecting enterprise workloads for cloud deployment often prevented organizations from moving to the cloud.

The COVID-19 pandemic revealed the need for a digital infrastructure that is the underlying platform for all IT and business automation initiatives. The emerging digital infrastructure ecosystem, increasingly built on a cloud foundation, focuses on ensuring ever faster delivery of innovative infrastructure hardware, software, resource abstraction, and process technologies to support the development and continual refinement of resilient digital services and digital experiences. Digital infrastructure includes the assets/resources that enable the shifting of applications and code for

enhancing customer experiences (CXs), embedding intelligence/automation into business operations, and supporting ongoing industry innovation at edge locations that link back to centralized datacenters owned by enterprises or cloud providers.

Because of the acceleration of cloud adoption, and the scarcity of strong, internal cloud skills among most organizations, IDC is seeing continued use of external professional service providers to augment internal skills as Canadian organizations move to the cloud. Among organizations that had adopted PaaS or IaaS as of March 2020, 67% of them had used cloud professional services within the previous 24 months. IDC believes the high rate of using external cloud consultants will continue in 2021 and beyond. To better inform sourcing decisions of services firms active in the cloud market in Canada, IDC has used its IDC MarketScape methodology to provide detailed insights of prospective suppliers to support our clients' sourcing decisions.

Determine Your Cloud Maturity

Given the acceleration in cloud adoption and broader usage, and the level of cloud maturity among Canadian organizations, IDC recommends that organizations determine their cloud maturity and their digital strategy, and supporting cloud strategy, when evaluating cloud professional services firms. What skills do you have, and what do you need to execute your strategy? Organizations that have yet to move to the cloud can still be successful and accelerate their journey by learning from pitfalls experienced by early adopters. Organizations that have stalled in their maturity can jump-start their journeys by focusing on the obstacles to cloud maturity – and select the right professional services provider to assist them in overcoming those obstacles.

IDC uses a five-level maturity model (called an IDC MaturityScape) to represent the progression an organization goes through in terms of adopting and mastering a technology or process. The IDC MaturityScape for cloud aims to assist organizations in realistically appraising their current capabilities, articulating reasonable short- and long-term goals, identifying their gaps, and beginning an action plan for change. The IDC MaturityScape for cloud outlines cloud computing across five stages, from ad hoc to optimized. In summary, the key characteristics of each stage are:

- **Ad hoc (exploratory clouds):** Individual development and line-of-business (LOB) teams experiment with cloud. Shadow IT reigns supreme with inconsistent approaches to security, information management, and governance.
- **Opportunistic (collaborative standardization):** Cloud leaders begin to collaborate and learn from one another, formalize best practices, and develop frameworks for implementing enterprise-scale hybrid multicloud architectures.
- **Repeatable (agility unleashed):** More consistent and standardized availability of automated cloud resources and services enable developers and LOB teams to execute more rapidly and cost effectively.
- **Managed (industrial clouds):** Mission-critical workloads and applications are increasingly implemented using cloud platforms and services. Workload portability increases while end users enjoy consistent experiences across applications.
- **Optimized (innovation and transformation):** Organizations' cloud strategies and policies are consistently defined and implemented, resulting in more robust and flexible IT availability and lower costs and risks.

As organizations progress up the maturity scale, they should address the four critical dimensions that lead to successful progression. IDC believes that failure to satisfactorily address all four dimensions is

why many Canadian organizations have seen their cloud maturity stall. Selecting the right cloud professional services provider can help pinpoint the obstacles to overcome and accelerate your journey. The four critical dimensions are:

- **Vision:** This dimension considers the importance of cloud strategy, leadership, and risk management as organizations transition to a cloud-first approach that serves the business. This requires a long-term view and understanding of an organization and its objectives, opportunities, and challenges; this includes executive sponsorship and organizational responsibility for control of spending.
- **Technology:** This dimension describes how organizations should mature their approach to IT infrastructure, security, and IT automation to ensure increasing value from cloud investments.
- **People:** This dimension includes skills and training and self-service empowerment in the entire organization, not just IT. Importantly for cloud, this dimension also includes competencies in partner and vendor governance.
- **Process:** This dimension defines the evolution of controls/governance, data/information management, and cloud service provider contract management as they become more institutionalized and automated with increasing maturity in cloud adoption.

Working with the right professional service provider can help identify specific obstacles and remedy them through specific actions or decisions based on the provider's experience with other clients. For example, the provider can help identify how cloud impacts your organization's operating model, devise a manageable sequence to migrate applications or workloads to the cloud, determine the impact on security and compliance from the cloud investment, or help establish a cloud center of excellence to bring internal expertise together.

Future of Cloud Is Hybrid

As digital infrastructure becomes a driving force that shapes IT investments, organizations are reminded that the shift to cloud will encompass a hybrid cloud model based on experiences of early adopters and product road maps of leading vendors. The concept of distributed cloud computing is becoming more real in the form of products from a majority of public cloud providers. They are making it easier to migrate workloads from one cloud deployment model to another. In addition, IT budget intentions of Canadian organizations are planning for different cloud deployments for years to come. In 2020, 20% of Canadian IT budgets were allocated to public cloud deployments, 14% of budgets were allocated to in-house private cloud, and 13% of budgets were allocated to hosted private cloud. In 2022, 29% of budgets will be allocated to public cloud deployments, 13% to in-house private cloud, and 15% to hosted private cloud deployments. The budget intentions reinforce that Canadian organizations recognize the future of cloud is hybrid.

Since the future of cloud will be hybrid cloud for most organizations, IDC advises buyers to consider the hybrid cloud capabilities of professional services firms they are evaluating. Furthermore, this advice extends to the professional service firm's capabilities around multiple cloud technology stacks such as AWS, Microsoft Azure, Google Cloud, IBM Cloud, and VMware.

Size Is Important But Bigger Is Not Necessarily Better

This IDC MarketScape examined a broad range of providers addressing the cloud professional services needs of enterprise customers. IDC could have assessed many more providers as there are many firms in Canada providing cloud professional services, but they did not meet our revenue and employee size thresholds to be included. IDC interviews with the vendors and IT buyers indicate many

of those vendors have strong capabilities. IDC advises prospective customers to prioritize their requirements and consider several (or more) of the providers of varying sizes able to meet their requirements in terms of service delivery, ability to grow with you, relationship management, and cost constraints. Find the right provider that fits your requirements and culture. See the Vendors to Watch section in this IDC study for a list of additional vendors to consider when procuring cloud professional services.

Apply Governance Framework from IT Outsourcing to Cloud Projects

The gap between traditional consulting and integration projects and ongoing managed service engagements is narrower in cloud services than in the past. A key reason for this is the nature of the cloud technology being delivered as a service on an ongoing basis. As a result, cloud services have similar look and feel as traditional IT managed services. Many organizations do not have a comprehensive cloud strategy and thus grapple with migrating to the cloud – as evidenced by the slow growth in cloud maturity. Organizations that have developed a capability to govern external technology service providers (e.g., IT outsourcers) may be better equipped in preparing to work with cloud professional services providers because they have an understanding of how to work with and leverage the abilities of IT outsourcers. For example, IDC has seen many vendor management teams develop dispute resolution mechanisms for large service contracts and others conduct regular, comprehensive vendor portfolio assessments – both practices that are useful in managing successful, long-term vendor relationships. IDC believes organizations can leverage their experiences from IT outsourcing – or learn from their peers – to apply vendor governance frameworks to cloud projects to ensure maximum business value gained during or after cloud projects are complete.

Become a Cloud-Native Enterprise

As enterprises encounter increased demands to digitize both their products and operational processes, they will find it necessary to become primarily producers of software as opposed to consumers of off-the-shelf, packaged software. This transition from being primarily consumers of software to producers of software will require enterprises to make a multitude of cultural, operational, and technical changes to have the capacity to produce software on the scale required to remain competitive with their peers. Furthermore:

- **Implement PaaS development tools.** Implementing PaaS is a key component of an enterprise's transition to cloud-native development because it provides developers with an integrated platform of infrastructure and software-related components to develop digital solutions. PaaS guides the decision-making process made by developers about the selection of development stacks, as well as compatible tools and services. PaaS also provides developers with self-service access to infrastructure and developer tools.
- **Cultivate developer familiarity with cloud-native technologies.** The second step for enterprises to become cloud native involves cultivating developer familiarity with microservices, containers, container orchestration frameworks, and other cloud-native technologies. Greater familiarity with these technologies will accelerate cloud maturity and help build cloud-native mission-critical applications.
- **Implement DevOps.** IDC research found that 30% of Canadian organizations with more than 500 employees had implemented DevOps in 2020, and 35% of them are planning to implement by 2022. This is an important step because cloud-native development requires the automation of processes for provisioning hardware, scaling an application, integrating code changes made by multiple team members into a single codeset, and deploying an application

to production. DevOps accelerated developer velocity by automating processes that would otherwise need to be executed manually. This greatly impedes working at cloud speed.

- **Cultivate a developer-centric culture.** Cloud-native enterprises are agile and fast because they leverage more people and expertise than traditional application development practices do. Cloud-native enterprises use part-time developers (e.g., data scientists, business analysts, project managers, and other line-of-business staff) to focus on developing software solutions using low-code and no-code developer tools. Part-time developers are encouraged to participate and benefit from oversight and support from the professional development team.

VENDOR SUMMARY PROFILES

This section briefly explains IDC's key observations resulting in a vendor's position in the IDC MarketScape. While every vendor is evaluated against each of the criteria outlined in the Appendix, the description here provides a summary of each vendor's strengths and challenges. IDC's assessment includes 10 vendors (in alphabetical order): Accenture, Capgemini, CentriLogic, EY, HCL, IBM, KPMG, TCS, TELUS International, and Wipro.

HCL

HCL is positioned in the Leaders category in the 2021 IDC MarketScape for Canadian cloud professional services providers.

HCL is an India-based multinational IT professional and managed services company with operations in over 45 countries. HCL has operated in Canada for more than a decade, providing services to Canada-based enterprises and Canadian subsidiaries of international clients. Its service revenue mix is roughly 50% professional services and 50% managed services, according to IDC estimates. HCL's business strategy is to help clients build enterprises for the digital age; HCL supports that strategy with a service portfolio encompassing its core services (i.e., application development and management, infrastructure management, product engineering, and business process outsourcing services) and 3rd Platform services (AI, analytics, IoT, cybersecurity, and cloud-native environments). Increasing its onshore employee base is part of its global strategy. In Canada, HCL has a goal of 60% of its service delivery from Canadian employees and 40% offshore. HCL has approximately 1,100 employees in Canada, of which 400 are available for IT service projects based on IDC estimates. HCL has two delivery centers in Canada (Toronto and Moncton, New Brunswick), with plans to build two more locations in 2021. HCL focuses on several industries in Canada, including telecommunications, financial services, retail, and manufacturing.

HCL's focus in cloud services is to help clients build and operate hybrid cloud environments that are the platform for their digital businesses. HCL's capabilities start with consulting and design services to support migration to managed cloud services. These involve capabilities such as cloud advisory and road mapping that transitions to architecting and designing clouds using cloud pilots, with the objective to create continuous build and run capabilities to support the full stack of infrastructure and applications. HCL has partnerships with many technology providers. HCL has created dedicated business units for Google Cloud, Microsoft, IBM, and AWS to elevate those partnerships and provide greater organizational focus, investment, and scale. It has invested in dedicated cloud-native labs in the United Kingdom and the United States to support clients; these two cloud-native labs are part of a broader network of 40 technology labs globally.

HCL has more than 11,000 dedicated resources for cloud professional services globally, with approximately 15% of the resources in the Americas, 15% in Europe, and 70% in Asia/Pacific, mostly in India. In Canada, IDC estimates that HCL has approximately 100 dedicated resources for IaaS- and PaaS-related cloud professional services. HCL has approximately 1,700 certifications in Microsoft Azure, 1,100 certifications in AWS, 350 certifications in Google Cloud, and 275 certifications in IBM Cloud. Hybrid cloud services are an important area for HCL, as evidenced by its 1,300 certifications in Red Hat. It has invested US\$100 million into automating hybrid cloud services via its DRYICE automation platform, as well as its MyCloud cloud management platform. It has made a number of acquisitions related to building up its intellectual property solutions, which indirectly benefit its cloud professional services, such as Actian for hybrid data management.

HCL Canada sees its differentiators in cloud professional services in its intellectual property solutions, its partner-specific value creation plays, and its flexible pricing approach. HCL's investments to build or acquire intellectual property, such as ElasticOps for automated multicloud management and Eagle's Nest program for staff competency development, provide clients with consistent and quality service delivery. HCL has co-created value creation plays with specific cloud partners, such as a migration factory to move ISV applications to Microsoft Azure, Lab 21 for Microsoft's Cortana Intelligence Stack and Azure Cloud, automating SAP migration to Google Cloud, and a program to aid clients exit datacenters and migrate all workloads to AWS. The plays are intended to avoid conflict between cloud partners and HCL and enhance client value. Finally, HCL sees its flexible pricing approach as a key differentiator in that it has pricing models based on business outcomes. HCL has examples of pricing models tied to client business performance, the client's satisfaction with HCL's service, and pay as you go. The pricing models require HCL to share in some of the risk alongside the client.

HCL's value proposition to clients is to be a long-term partner in helping them become a resilient digital enterprise. HCL's services business is based on a relatively smaller number of long-term, broad-scope client engagements. Much of its cloud professional services business is with these same managed service clients for additional scope of services. HCL is also highlighting its decade-long commitment to the Canadian market and its deepening investments in Canada.

Strengths

HCL's strategy for cloud professional services is most aligned to the Canadian market in its delivery model, its functionality, and its innovation. With the investment in its New Brunswick nearshore facility, HCL now has a three-tier delivery strategy in Canada that offers clients flexibility and lower cost. Its strategy around hybrid/multicloud, cloud-native development and emerging technologies offers clients the ability to meet changing needs as they increase their cloud maturity. And HCL's sharing of thought leadership on cloud professional services specifically showcases its innovation in this area.

HCL's delivery execution, cost competitiveness, and benefits of its portfolio stand out among its other capabilities. Canadian organizations perceive HCL's delivery execution to be very good. There is also good regard of HCL's cost competitiveness among Canadian organizations. HCL's offering portfolio benefit clients because of its industry-focused intellectual property and complementary services beyond cloud.

Challenges

HCL has grown in Canada in recent years but its growth in cloud professional services has not kept up with the overall market growth. A related challenge to growth is that HCL has not acquired organizations globally or in Canada that have significantly added to its cloud professional services

revenue growth. From a capabilities perspective, the number of dedicated cloud resources in its Canadian practice is limited, and there is some market concern about HCL's staff turnover for cloud projects. Furthermore, the overall level of awareness of HCL's cloud professional services in Canada is at average levels.

Consider HCL When

Consider HCL when you are looking for a vendor with broad infrastructure and application capabilities at a competitive cost and the need for both services automation and cloud technology is at the core of the transformation initiative.

APPENDIX

Reading an IDC MarketScape Graph

For the purposes of this analysis, IDC divided potential key measures for success into two primary categories: capabilities and strategies.

Positioning on the y-axis reflects the vendor's current capabilities and menu of services and how well aligned the vendor is to customer needs. The capabilities category focuses on the capabilities of the company and product today, here and now. Under this category, IDC analysts will look at how well a vendor is building/delivering capabilities that enable it to execute its chosen strategy in the market.

Positioning on the x-axis, or strategies axis, indicates how well the vendor's future strategy aligns with what customers will require in three to five years. The strategies category focuses on high-level decisions and underlying assumptions about offerings, customer segments, and business and go-to-market plans for the next three to five years.

The size of the individual vendor markers in the IDC MarketScape represents the market share of each individual vendor within the specific market segment being assessed.

IDC MarketScape Methodology

IDC MarketScape criteria selection, weightings, and vendor scores represent well-researched IDC judgment about the market and specific vendors. IDC analysts tailor the range of standard characteristics by which vendors are measured through structured discussions, surveys, and interviews with market leaders, participants, and end users. Market weightings are based on user interviews, buyer surveys, and the input of IDC experts in each market. IDC analysts base individual vendor scores, and ultimately vendor positions on the IDC MarketScape, on detailed surveys and interviews with the vendors, publicly available information, and end-user experiences in an effort to provide an accurate and consistent assessment of each vendor's characteristics, behavior, and capability.

Market Definition

Cloud professional services are primarily project-based services that assist customers with planning and implementing a cloud services strategy, which involves deciding how to adopt the use of public clouds, deciding how to build and implement private clouds, or deciding how to use a hybrid of public and private clouds.

Cloud professional services may include assessments and road map development, workshops and accelerators, implementation of pilot programs or other deployments, and proofs of concept. These solution services may also include assistance in implementation or adoption of cloud services such as SaaS, IaaS, or PaaS as well as the integration of these services into the customer's IT environment (whether cloud related or noncloud related).

Note: For this IDC study, only project-based services for PaaS and IaaS are considered for vendor assessments.

The cloud professional services market includes elements from four of IDC's services foundation markets, which are defined in their entirety in *IDC's Worldwide Services Taxonomy, 2019* (IDC #US44916019, March 2019). Some examples of specific cloud professional services are shown in Figure 2.

FIGURE 2

Examples of Cloud Professional Services



Source: IDC, 2021

LEARN MORE

Related Research

- *IDC MarketScape: Canada Salesforce Implementation Services 2020 Vendor Assessment* (IDC #CA46257720, December 2020)
- *Future of Digital Infrastructure: Ever Faster Delivery of Reliable Digital Services and Experiences* (IDC #US46807920, September 2020)
- *The Path Toward a Cloud-Native Enterprise: PaaS, Cloud-Native Technologies, DevOps, and Developer Centricity* (IDC #US46538720, June 2020)
- *Governing Vendors for Transformation: Getting the Most from Third-Party Relationships* (IDC #US46141620, April 2020)
- *IDC MarketScape: Canadian Datacenter Operations and Management Services 2019 Vendor Assessment* (IDC #CA44463419, April 2019)
- *IDC's Worldwide Services Taxonomy, 2019* (IDC #US44916019, March 2019)
- *Cloud Success: Migrate with a Plan to Mature* (IDC #US44883619, March 2019)
- *IDC MaturityScape Benchmark: Cloud Worldwide, 2017* (IDC #US41925016, November 2016)

Synopsis

This IDC study represents a vendor assessment of the Canadian cloud professional services market through the IDC MarketScape model. This IDC study covers a variety of vendors including global systems integrators and Canada-based firms. The research is a quantitative and qualitative assessment of many characteristics that buyers consider when selecting a cloud professional services provider. This evaluation is based on a comprehensive set of parameters important to meeting the customer's current and future needs for cloud projects involving PaaS and IaaS. This IDC MarketScape covers 10 vendors participating in the Canadian cloud professional services market.

"More Canadian organizations are adopting and expanding their use of cloud services than ever before as they race to build digital infrastructures to prepare for the post-pandemic recovery. Canadian organizations are working with cloud professional services firms to accelerate their cloud maturity and augment their in-house capabilities. IDC expects this trend to continue as the shift to cloud becomes more imperative and the complexities to build automated and intelligent, hybrid, multicloud digital infrastructures become greater," says Jason Bremner, research vice president, Industry and Business Solutions.

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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