

White Paper

Leveraging Digital Engineering to Create a Resilient Organization

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Mukesh Dialani
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IDC OPINION

The rapid pace of technology evolution is forcing an innovative approach and mindset in how customers plan, design, implement, operate, retire, and reinvent technology solutions and their expected outcomes. Legacy IT Infrastructure at many customer locations needs to catch up as there is a negative impact on overall operational performance and the additional risk related to security. IT performance has a direct correlation to an organization's financial performance, and critical investments should be made in analytics, automation, machine learning, and other digital technologies to monitor IT availability and performance in real time and prevent downtime by predicting and acting on impending IT and network infrastructure downtime.

Leadership is tasked with an innovation agenda, but they need a stable and consistent IT environment to stand up digital initiatives. To ensure elevated levels of customer satisfaction and to fulfill the aspiration to create an *always-aware* organization, they have invested in various digital initiatives. However, despite their best innovation efforts, the goals of digital investments are not being realized by many customers.

Enterprises face many barriers internally that inhibit or limit true business transformation. These challenges include increasing costs of sourcing and retaining talent in a rapidly evolving technology landscape. Historically, these customers have kept a significant percentage of their IT support functions in-house. With a heavy focus on controlling costs and keeping the lights on, organizations have lost sight of a more important function, which is to accelerate innovation through digital transformation. To compound this situation, customers mistakenly think that if implementation and training activities are onsite and kept in-house, they will have greater control, be able to keep costs down and improve performance, and speed adoption as well as digital transformation efforts.

Eventually, as they see their networking operations and deployments not performing optimally or getting negatively impacted due to ever-widening skills gap and technology/migration issues, business leaders are challenged to deliver performance and evaluation. This situation is making them reevaluate their current IT strategy, and they begin exploring partnerships with engineering optimization service providers to collaborate for best practices and other consulting, training, implementation, and troubleshooting services. The benefits present themselves in the form of high availability and scalability of their own infrastructure, quick insight into impending negative impact to network infrastructure, development of highly trained talent, reducing overall operational and business risk, and an accelerated path to achieving innovation and transformation.

SITUATION OVERVIEW

The ever-evolving technology and solutions landscape needs an agile approach across every life-cycle stage from planning to the retire/reinvent stage. The intent is to ensure that the focus is to improve end-customer experience (CX) and enable organizations to sense, respond to, and optimize every customer touch point along their customer's journey. Organizations that do not align their strategic initiatives around strengthening CX are seeing or will see a negative impact on their business growth, market share, and branding.

In the current COVID-19 context, it is more important than ever before for organizations to transform their engineering and IT infrastructure by leveraging digital technologies and ecosystem partnerships to become resilient and adaptive as they navigate this new world reality:

- Resiliency refers to optimizing performance and de-risking engineering and IT to increase capacity and improve availability, no matter where you work. It also empowers various roles across the organization's engineering and IT landscape to sense and respond to any change that impacts their business and drive innovation.
- Adaptive refers to an adaptive engineering and IT workforce that is equipped with the right technical expertise and that can address any known or unknown needs.

The engineering and IT team in every organization is always in a dynamic mode. The team either has intent to evaluate and onboard or is evaluating and onboarding new and emerging technology solutions, thereby constantly attempting to innovate. The job roles, responsibilities, expectations, and vision for various organizational engineering leadership personas include the following:

- Evaluate performance of existing infrastructure and explore new relevant technology implementations to transform the IT environment and improve performance.
- Design and implement applications and networks in a timely and cost-effective way.
- Identify and align projects and execute them with current in-house or minimal external talent and minimal risk.
- Identify a project/product portfolio and road map for the next one to three years.
- Avoid too much complexity.
- Provide relevant on-demand or archived technical expertise.
- Have the ability to migrate from current to future design state seamlessly and with minimal operational disruption.
- Drive successful adoption.
- Provide guidance and infrastructure to various engineering teams.
- Identify and deploy innovative technology that aligns and integrates well with existing architecture.

As engineering leaders go about implementing their vision, their agendas result in conflicting strategic initiatives. There is often a disconnect between architects, who design and recommend a solution based on a proof of concept (POC) with a small demographic sample, and the engineering teams, which execute to achieve a predefined aspirational end state. Architects are visionaries, and engineers focus on data and science. This brings to head stakeholders with the same intent but different personality types and professional aspirations.

In addition, architects understand that the technology stack they work with evolves frequently, and they want to align and build their capabilities accordingly. As a result, they tend to be less risk averse as

compared with, say, engineering teams, which may not be confident about adopting a solution, or operations teams, which may believe they cannot support the new solution or don't have the required budgets. This scenario results in a vendor selection process that is more risk averse as compared with the approach adopted by architects, thereby limiting new technology infusion and innovation.

Deploying the solution for the next phase (developing and implementing), which involves users with diverse technology backgrounds and implementation experience, becomes challenging for operations teams in terms of how they are going to launch new apps and creates a budgeting and technology selection conundrum. At times, complex requirements and limited technology awareness force some leaders to get back to the drawing board before undertaking new initiatives.

An ideal scenario would be an ecosystem collaborative approach that draws upon the strengths and capabilities of various stakeholders and provides the following benefits:

- Business and domain-specific consulting
- Ability to integrate and deploy new methodologies and technology
- Access to scalable talent/infrastructure and ongoing services

CISCO BUSINESS CRITICAL SERVICES

Optimizing and De-Risking Engineering and IT Operational Performance

Cisco recognizes that there is a lot of complexity that goes into planning and integrating technology, and its customers must clearly define outcomes throughout every step of their product and infrastructure evolution journey. With the aim to assist its customers' engineering and operations leadership to access talent and training material, reduce costs, improve operations, and accelerate transformation, Cisco has launched its Business Critical Services (BCS) tiered offerings. To achieve this speed to value state, the company has leveraged all its experience and insight in transforming its customers' legacy systems to next-generation solutions.

Cisco has created a framework of solutions that provide key IT stakeholders in their customer organization with continuous consultative engagement, access to trusted experts, automation, and analytics. At the very heart of Cisco's BCS are foundational benefits in the form of offline or real-time constant engagement with and access to experts as well as insights from the company's existing partnerships with over 1,700 global BCS customers. A customer can select these services to be delivered remotely, onsite, or via an online webinar to address a larger engineering audience.

BCS will help customers define their strategic road map and implement, adopt, and infuse continuous optimization, innovation, and security into their environment. At the core of Cisco's vision to offer these standardized Business Critical Services is to design, implement, adopt, and sustain a stable but resilient IT infrastructure that meets Cisco's customers' needs as they are increasingly tasked with technology implementations for innovative business models. Overall, most of Cisco's solutions are focused on the engineering function, as BCS was, in large part, designed to accelerate deployment and adoption.

Cisco's life-cycle approach identifies and addresses its customers' needs that include architecture, engineering, NetOps, SecOps, and DevOps and other complex software engineering-related needs. This scalable subscription-based service offering is built with the end goal of assisting customers to accelerate design, deployment, and adoption to achieve their transformational goals.

Foundational Elements

Cisco incorporates three broad foundational elements across its portfolio of services:

- **Guidance throughout the technology life cycle.** Leveraging best practices at every step – from evaluation to transformation, irrespective of the decision-making phase – Cisco's trusted experts provide guidance throughout the life cycle of their customers' infrastructure, so customers get the most out of their technology investments and achieve their targeted outcomes. The company provides expert guidance, best practices, and proven methodologies focused on industrywide solutions to guide through every stage of their customers' life-cycle journey. These experts employ use case best practice sharing and one-to-one personalized coaching engagements to optimally support customers along the life-cycle journey.
- **Continuous engagement framework.** Within this framework, Cisco provides recommendations that are curated using a broad range of methodologies, insights, tools, and resources to ensure that every team member can optimize performance and speed transformation. During the subscription period and depending upon the service tier, Cisco hosts up to 24 sessions a year with its customers. This service offering includes access to consulting experts who leverage a use case approach, best practices, and a one-to-one personalized coaching approach to provide guidance on accelerating the customer's product/operations life-cycle journey.
- **Value for every IT role.** Cisco targets key IT roles and enables customers to close the skills gap through knowledge sharing and coaching. Moreover, IT roles in a customer's organization are empowered with continuous access to trusted Cisco experts, along with analytics, insights, and automation to change that equation, helping customers achieve higher performance, speed adoption, and accelerate transformation. Specifically, engineering teams can de-risk technology transitions and design and accelerate deployment of new IT solutions to increase business agility. According to Cisco, these services for engineers can offer more effective software upgrades, lower deployment costs, reduce testing time by 47%, and improve time to market by 66%.

These engagements are enhanced by Cisco's Collaborative Intelligence, which is Cisco's approach of combining human and digital experience. Key tenets include:

- Actionable telemetry to connect customers, partners, and Cisco with secure insights across specific target systems
- Use case-driven solutions to deliver specific business outcomes across architectures
- Contextual learning designed to advance customers' and partners' workforce skill set
- Artificial intelligence/machine learning (AI/ML) combined with customer data to unlock unique insights
- Digital experience that brings all of this together in one common digital interface and platform, the new CX Cloud.

Customers can access these Business Critical Services by leveraging any of the three tiers, and their add-ons, explained in the sections that follow (see Figure 1).

FIGURE 1

Cisco Business Critical Services

Business Critical Services

Expertise powered by the analytics, insights, and automation of CX Collaborative Intelligence



Note: Purchase more than one Essentials or Advantage tier to extend the number of engagements.

Source: Cisco, 2020

The Essentials Tier

The Essentials tier enables customers to optimize IT and de-risk IT operational performance through continuous engagement with Cisco experts and deep analytics that provide predictive insights to instill best practices to prevent future issues. All the tier elements are delivered remotely and have a predetermined number of times they can be delivered throughout the subscription time frame. The tier deliverables include the following:

- **Operational Insights Review.** This service combines Cisco's analytics and expertise with a monthly meeting of up to four hours to proactively help review, meet, and improve the customer's KPIs. The process starts with anonymized data collection from the customer's device configurations, platform information, and other logs and sent to the Cisco cloud. This data is then correlated with Cisco's existing database of like data from many of Cisco's devices from over 1,000 anonymized global customers. This data is subjected to automated AI/ML algorithms, and the resulting insights are used to provide specific and customized recommendations, best practices, and use cases. The ongoing analytics assists in identifying deficiencies and potential risks and mitigation in the customer's environment. Other benefits can include predictive analytics that can potentially identify any impending device crash risk as well as analysis of software life-cycle milestones. This process enables proactive performance monitoring, improvement in response times, and timely and effective action and reduces risk. Engineers can utilize this data to evaluate performance of existing infrastructure and explore new, relevant technology implementations. For example, they may identify capacity and availability bottlenecks that must be addressed through transformational redesign rather than patched through operational means.

- **Change Window Support.** This option provides implementation support for up to four scheduled change window support sessions per year. Cisco can review the change window prior to and during this scheduled change; the method of procedures to provide customers with expert guidance and best practice recommendations can also be reviewed during this change window. Depending on the engagement, clients can also receive a change implementation review and recommendation report, remote consultative guidance, or support during change windows. These services ensure that customers avoid the risk of rework and process failures.
- **Priority Case Management.** In addition to the details provided previously, these workshops focus on enhancing a customer's IT teams' knowledge and skills achieved by incorporating best practices and high-touch expert guidance. The options include the following:
 - **Configuration Review.** This will guide customers with software feature planning and configuration decisions.
 - **Implementation Review.** This will provide guidance related to the customer's implementation plans for new software features and configuration changes including prioritizations, technical dependencies, and other support.
 - **Test Review.** This option will provide guidance related to reviewing the customer's established test plans regarding technical dependencies, impact, and risk mitigation.
- **Ask the Experts.** This service provides customers with unlimited and live access to Cisco experts who can share industry best practices, high-level trends, and use cases to drive successful transformation and adoption. They also help customers understand and address common challenges across the life cycle.

The Advantage Tier

Building on the benefits of the Essentials tier, the Advantage tier was designed to accelerate transformation and adoption through continuous engagement with experts to create the appropriate architecture strategy and design, implementation, adoption, and testing plans. Expert-led group workshops enable more frequent interaction and are complemented by one-on-one interactions and interactive coaching sessions. These are all aligned to use cases across the technology life cycle.

In addition to all the services provided in the Essentials tier and as highlighted previously, the Advantage tier offers two additional services – Expert Incident Review and Accelerators:

- **Expert Incident Review.** This service offers up to four expert incident review sessions and includes a quarterly review of Cisco Technical Assistance Center (TAC) cases with the customer's IT team. The intent is to review network stability and performance. The Cisco team reviews quarterly patterns, TACs, and remedies for severity 1 and severity 2 cases open with TAC. Assessed alongside are network configuration information, operational insights, remediation plans, team priorities, and more. The output is a quarterly expert incident report that provides recommendations to prevent and minimize problems, drives consistency in how cases are managed, and details specific guidance to help drive higher network availability and stability to support a customer's business systems. Engineers will find insights from root cause analysis that will drive transformational designs that prevent and manage systemic issues.
- **Accelerators.** This includes expert one-to-one coaching sessions to help customers move along the adoption life cycle. These coaching sessions are led by a Cisco-certified specialist who assists with accessing information from an ever-growing library of topics to be more productive. These sessions help with knowledge transfer for specific use cases and challenges. Topics include transformational design, onboarding, and implementation to use, engage, adopt, and optimize.

The Premier Tier

With unlimited and flexible entitlements for maximum consumption, BCS Premier empowers large enterprises, public sector customers, and service providers with the right amount of intelligence and guidance when, where, and how they need it – at every step of their Cisco journey.

To enable continuous engagement throughout the technology life cycle, BCS customers are entitled to, at a minimum, 20 Essentials, 40 Advantage, or over 100 Premier engagements with Cisco experts, leveraging deep analytics and predictive insights, to instill best practices to prevent future issues.

Business Critical Services Add-Ons

In addition, engineers can select even more in-depth expertise and resources via BCS Specialized Expertise. Engineers can choose Specialized Expertise services that include Scrum Services or individual Expert-as-a-Service contracted on a subscription basis. The services provide access to leading expertise powered by analytics, insights, and automation from Cisco and its partners. These are highly consultative and skilled resources, either teams or individuals that can advise, accelerate, and partner to help organizations innovate faster. Both services provide access to a deep pool of Cisco expertise and enable the customer to pivot focus to address changing needs. The key difference between these add-ons is the resource allocation model.

Scrum Services provides a flexible resourcing model that can adapt as priorities change. It enables customers to easily adjust IT expertise to respond quickly to disruptive events. The service operates on a team-based collaborative model that provides access to the right expertise mix, both onsite and remote, to support focused engagements throughout the life cycle, based on the needs of the business. Scrum Services for engineers includes design, engineering, and implementation services. Project types supported include low-level design documentation, device configuration, and design assessments.

Expert-as-a-Service involves placement of a dedicated expert on a team to support specific needs or a critical role through a combination of onsite and remote consulting, enabling customers to close talent gaps with the precise expertise they need to perform at peak levels. Cisco's role-based experts range from a consulting engineer and a solution architect to a project manager to enable large-scale transformation and adoption of multi-technology solutions. Consulting engineers provide deep domain knowledge and design support. These experts work with customer technical leaders throughout the engagement, assisting with projects such as implementation, troubleshooting, knowledge transfer, and automation as well as software application and optimization.

These tiered offers are also available through Cisco's partners, which ensures that no matter how a customer chooses to work with Cisco's technology, the life cycle process and philosophy will enable customers to get to their desired outcomes faster.

Targeted Outcomes

Cisco's tiered offers are built to help solve customers' engineering and IT challenges and help achieve target outcomes associated with their architecture, engineering, NetOps, SecOps, and DevOps solutions and services (see Figure 2). Partnering with Cisco enables customers to extend their in-house capability by providing increased knowledge transfers for use cases that simplify complex technology concerns and for hands-on services, keeping the customer's IT team up to date and responsive. BCS is backed by more than 10,000 CCIEs, many certified in multiple technologies. More than 60,000 certified Cisco partners extend this global footprint.

FIGURE 2

Cisco BCS Tier Differences

What's in the tiers

CX BCS lifecycle prepackaged portfolio and engagements

	Essentials	Advantage	Premier
 Operational Insights Review Sessions	12x per year	24x per year	Flexible
 Change Window Support	4x per year	4x per year	Flexible
 Priority Case Management	12x per year	24x per year	Flexible
 Ask the Experts	No limit	No limit	No limit
 Expert Review Workshops		4x per year	Flexible
 Expert Incident Review		4x per year	Flexible
 Accelerators		6x per year	Flexible

Expertise powered by the analytics, insights, and automation of CX Collaborative Intelligence

Note: Services are consumable one at a time (sequential) and have variable duration. For operational insights, one deliverable per architecture at a time is included. The quantities shown are estimates based on typical consumption profiles. Workshops are scheduled in advance.

Source: Cisco, 2020

CHALLENGES/OPPORTUNITIES

Digital transformation is a lot more encompassing than just using great technology. To rake in the benefits of leveraging new technology and redefining and executing IT roles and functions, an enterprise requires significant business experience, know-how, and an ecosystem approach to turn its strategic vision into reality. In addition, once a company redefines its product and operations strategy, it necessitates a rethink of internal functions (even if they may be critical) that can be handed off for execution. This means existing talent and leadership must reallocate budgets to enable their teams to focus on the core aspects of their business and let another partner support customers or run their operations. These refined solutions from Cisco will enable customers to increase their operational efficiency and performance while taking risk out of the equation and accelerate their journey as they adopt and implement new technologies.

In summary, key areas that enterprises need assistance with include the following:

- Bridging skill availability/gaps
- Accelerating *speed to value* and *time to market* for their products and services
- Complexity of integrating or implementing new, emerging technology
- Highly scalable and available infrastructure
- Best business and technology practices

With proper planning and integration, Cisco's BCS solutions will enable customers to:

- Create a digitally focused, agile organization that yields highly satisfied CX.
- Generate higher ROI from their talent/technology spend and better budget utilization.
- Reduce distraction and energize focus on core business.
- Achieve elevated levels of operational efficiency – insights will enable real-time detection and resolution of potential infrastructure problems.
- Perform and transform faster to drive innovation and competitive advantage.

CUSTOMER GUIDANCE

- Work with partners that can implement a solution and provide insight on your current infrastructure and quantify challenges to help identify needs that should be addressed first.
- Leverage engineering services provider consulting capabilities to get your teams up to speed faster on various technologies, integration methodologies, and so forth.
- Partner for talent, speed, scale, innovation, and cost.
- Ensure your partner understands your business and offers a product portfolio that you can leverage as your IT infrastructure and needs evolve.

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Global Headquarters

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-community.com
www.idc.com

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