

DIGITAL WORKSPACES AND THE CUSTOMER EXPERIENCE

How to connect the dots between Customers,
Business and Technology

The Digital Performance Management Company



Every layer, every component.
Code to bare metal.
Public, private or hybrid.

Forward

eG Innovations has been helping customers answer the question, 'Why is my application slow?' for two decades. My relationship with the company started at that time, and until I became a full-time employee more than 3 years ago, I had been-- and still am at heart-- an ITSM process geek.

So, some of this rant is about process, IT transformation, ITSM and DevOps. But my journey to service management excellence has been inextricably linked to monitoring; specifically, technology monitoring. Since today's business processes are largely digital, my continued preoccupation with process is not really off-base--- even for a 'monitoring' geek.

In fact, the attraction to a process-perspective of business capabilities --- how things work ---is so compelling that many organizations will be consumed by its applicability to the customer experience. But the fact remains that all of your efforts in process improvement, UX and UI design will be wasted if site/application performance is poor.

Providing end-to-end visibility – from users to servers to networks and storage – gives organizations a 360-degree view of complex, heterogeneous ecosystems. This single pane of glass view allows enterprise IT teams to collaborate easily and solve user-visible problems. The total performance visibility also allows IT architects to determine how to right-size and optimize their IT infrastructures for maximum ROI.

Technology monitoring in today's enterprises is increasingly difficult and costly, and my hope is that anyone taking the time to read this document will get at least some benefit and perspective on how monitoring--- and unified monitoring in particular--- can be an important and valuable lever for driving cultural change and keeping your technology investments focused on what matters:

The consumers of your business' digital services.

A road map to unified monitoring is a [wicked problem](#). While technology monitoring is inherently technical, it is not the technology that derails most efforts at unified monitoring. People are much more likely to be the biggest challenge you'll face.

And even though we say, '[Unified Monitoring](#)' or '[Universal Monitoring](#)', don't think that you'll someday be able to standardize on a single monitor. Almost all enterprises will have a portfolio of monitoring tools. But that doesn't mean that you shouldn't want to optimize your portfolio --- *of course you do!*

And therein lies the rub. Balancing a portfolio of monitoring tools is as much a people challenge as it is a technology one. It's an integral part of any digital transformation and a challenge worth addressing.

The digital experience has become the basis of competition in the new world, and unless you can connect the dots between your consumers, your business and the underlying technologies you may find yourself and your organization in turbulent waters.

Digital transformation today is like watching a river flow--- **but in this case you're in the middle of the rapids.** Unified monitoring can help make sure everyone's rowing in the same direction.



The digital workspace is a critical foundation for effectively navigating your transformation to the digital world. As trends like work from home (WFH) accelerate, getting a handle on managing the capacity and



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performance of your digital workspace is a logical starting point towards unified monitoring.

The digital workspace is a critical foundation for effectively navigating your transformation to the digital world. As trends like work from home (WFH) accelerate, getting a handle on managing the capacity and performance of your digital workspace is a logical starting point towards unified monitoring.

But don't stop there. The same benefits of total performance visibility of a digital workspace can be applied to any digital business service.

It's time to take the plunge and get started.

I've referenced many other authors and excellent guidance I've found along the way and have listed these in the book. My thanks to them for sharing and I hope that in some small way I've been able to reciprocate.



About eG Innovations

eG Innovations provides the world's leading enterprise-class performance management solution that enables organizations to reliably deliver mission-critical business services across complex cloud, virtual, and physical IT environments. Where traditional monitoring tools often fail to provide insight into the performance drivers of business services and user experience, eG Innovations provides total performance visibility across every layer and every tier of the IT infrastructure that supports the business service chain. From desktops to applications, from servers to network and storage, eG Innovations helps companies proactively discover, instantly diagnose, and rapidly resolve even the most challenging performance and user experience issues.

eG Innovations' award-winning solutions are trusted by the world's most demanding companies to ensure end user productivity, deliver return on transformational IT investments, and keep business services up and running. Customers include 20th Century Fox, Allscripts, Anthem Blue Cross and Blue Shield, Aviva, AXA, Biogen, Cox Communications, Denver Health, eBay, JP Morgan Chase, PayPal, Southern California Edison, Samsung, and many more.

Table of Contents

| | |
|--|----|
| Forward | 02 |
| Customer Experience | 06 |
| SLA Challenges | 07 |
| Tomorrow's Always a Day Away | 08 |
| Universal vs Unified Monitoring | 10 |
| Digital Workspaces and the Customer Experience | 12 |
| • Processes and Workstreams | 13 |
| • Customers and Value | 15 |
| • Services and Service Management | 17 |
| • Flow and IT Operating Model Perspectives | 18 |
| • Fugle Innovation Model | 18 |
| • DevOps (People) | 19 |
| • ITSM (IT Process) | 21 |
| • IT4IT Reference Architecture (Tools/Technology) | 21 |
| • Operating Models and Co-Operations | 22 |
| • Processes, Services and Value Flows | 22 |
| Process Improvement and the Digital Workspace | 23 |
| Connecting the Dots | 24 |
| • The Business Capability Iceberg | 24 |
| • Successful Customer Outcomes & Moments of Truth | 24 |
| • Business Capability Areas | 25 |
| • Measurement Frameworks | 25 |
| • Business Process & Digital Services Perspectives | 26 |
| Digital Performance Monitoring | 27 |
| • Real & Synthetic User Monitoring | 27 |

Table of Contents

| | |
|--|-----------|
| • Business Transaction Monitoring | 28 |
| • Application & Infrastructure Monitoring | 28 |
| • Enterprise Applications and the Cloud | 29 |
| • Connecting the Dots with Converged APM/IPM | 30 |
| • The Digital Workspace as a Starting Point | 30 |
| • Digital Performance Monitoring | 30 |
| Next Steps | 31 |

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Customer Experience

Have you ever been Experienced?

While there's a fever pitch around customer experience today, this is not really a new topic.

Customer experience emerged out of telecom; Quality of Experience (QoE) measured the delight or annoyance' of a customer's experience with a service.

Today, the customer experience movement is driven by digital transformation and goes far beyond just 'the network'.

Experience is how a customer feels or their opinion at a given time but more importantly, over time.

(CitrusCollab, n.d.)

The Experience Level Agreements (XLAs) we hear about today attempt to connect technical performance with customer perceptions across all IT transactions and interactions.

Experience Indicators should be anchored to the wants and needs of your customers (*i.e., what makes them happy?*)

With everything –as-a-service in the digital world, the number of service level agreements (SLAs) and associated key performance indicators (KPIs) has increased exponentially.

Connecting the dots between your customers, the business and technology has never been more difficult than it is today.



"Different IT tribes will want to measure QoE for different reasons. Many want to be warned of a storm brewing and be well prepared to explain why their tribe is not the source of the problem (or fix it before they call). I call this the "it's the other bastard's fault" motivator.

QoE decisions, like many technology investments, can be tribally driven. This is particularly true if the organization has not invested in the time to understand and define 'what is a service' and performed some due diligence in analyzing [business] processes.

Some IT tribes will display true leadership and go beyond their comfort zones by incorporating other technical silos into the equation, but I suspect this is going to be difficult for many.

Taking an approach driven by best practices can help avoid experiencing the angst associated with knowing with absolute certainty where the problem *isn't*, but not knowing where the problem *is*.

- MyServiceMonitor, 2008

SLA Challenges

When it comes to the digital journey, consumers expect things to **just work**. But underneath all the digital touch points that a customer encounters is a dizzying array of metrics.

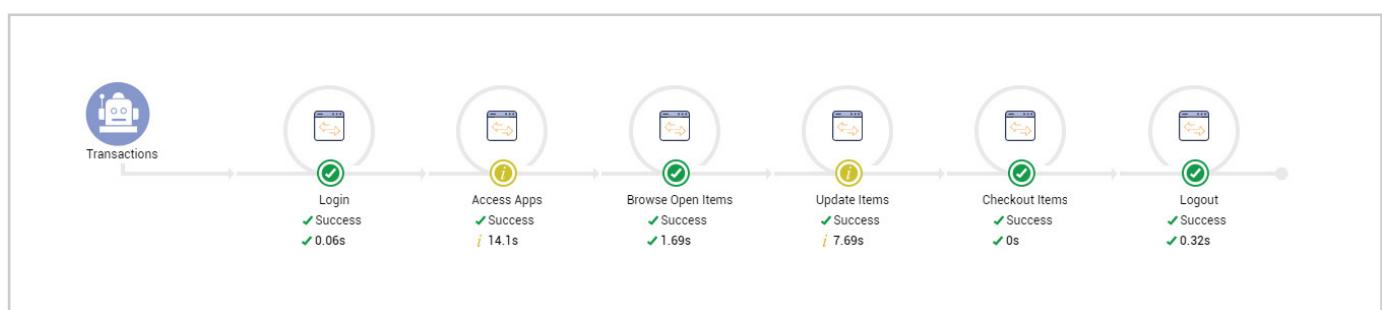
As everything becomes a service, the number of key performance indicators associated with each of these services explodes. Since the customer experience depends on the coordinated functioning of all of these, managing digital performance has become a huge problem.

While outsourcing some or all services to a cloud provider---or multiple cloud providers---can reduce your maintenance burden, the reality is it can make performance management even more difficult.

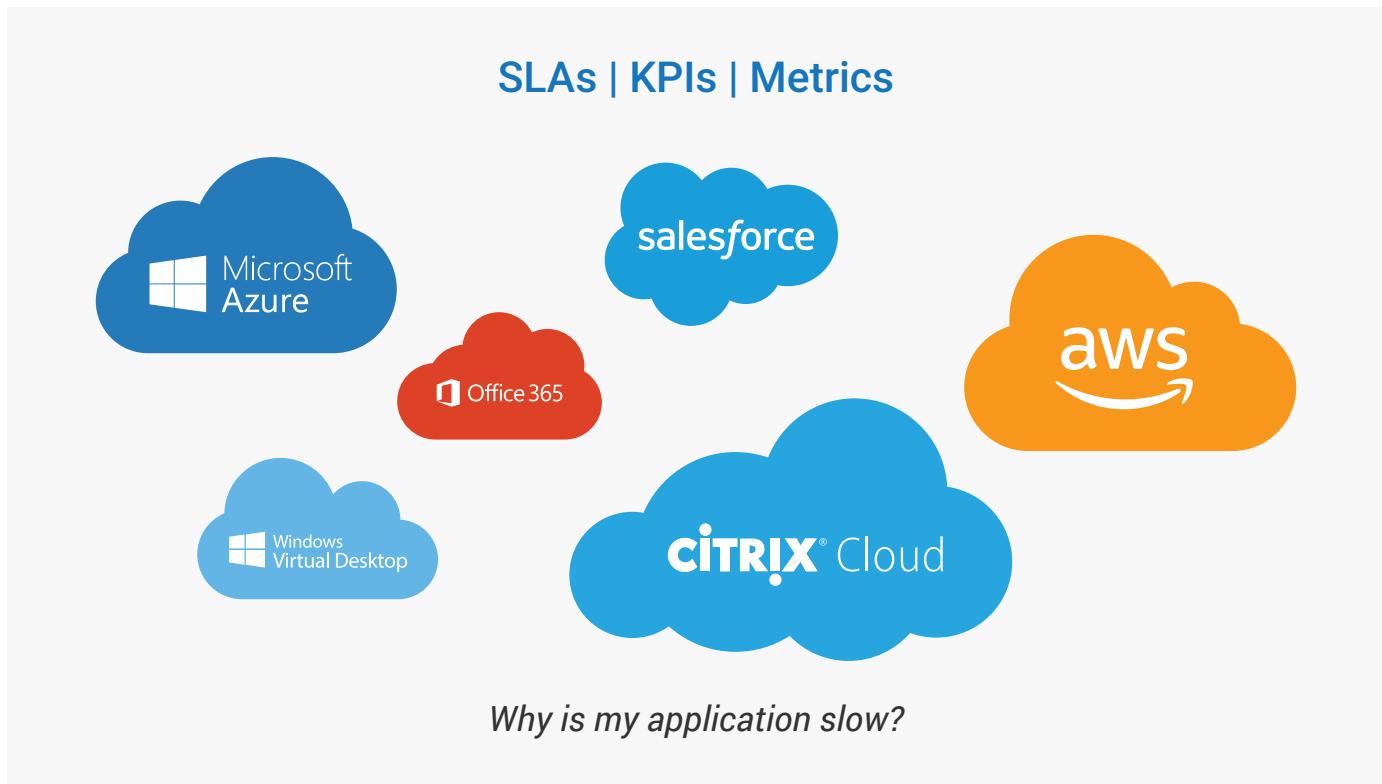
To Consumers,
There's no
satisfactory
excuse for a poor
Digital Experience.

*Harvard Business Review;
What a Great Digital Customer
Experience Actually Looks Like*

Digital Touch Points



SLAs | KPIs | Metrics



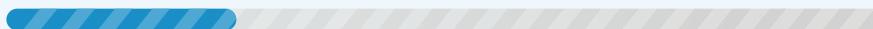
Tomorrow's Always a Day Away

The appeal of 'autonomous operations'--- NoOps--- isn't really too surprising is it? IT operations has always seemed to be in the basement of IT to me. Customers complaining, things breaking and living inside a cost center has never been a picnic.

But the quixotic quest for 'NoOps' is just that. We'd be better off embracing operations than attempting to avoid it, and this is largely what is happening today in spite of the term 'NoOps'. Attempting to get rid of operations misses an important point. Since businesses will forever be under constant pressure to change, operations must be embedded in everything we do.

LOADING

Please feel free to wait forever



Life lived for tomorrow will always be just a day away from being realized.

-Dr.Love

At the time of this writing, the term AIOps is one of the hottest buzzwords in monitoring. Gartner, who coined the term, defines AIOps as follows:

Artificial intelligence for IT operations (AIOps) is an umbrella term for the use of big data analytics, machine learning (ML) and other artificial intelligence (AI) technologies to automate the identification and resolution of common information technology (IT) issues.

-Gartner

This is a fancy way of saying that emerging technologies such as artificial intelligence, big data and machine learning are being used to help monitoring do what it's always tried to do---

Detect events, make sense of them and determine the appropriate control action.

While there is debate about 'domain-centric' vs 'domain-agnostic' approaches, a simple way to evaluate a monitoring solution is to simply see how it can meet monitoring's basic goal based on a specific target ecosystem or digital service.

Keep this thought in mind; if the target of your monitoring does not map to the consumers of your digital service, it's time to re-think the target. The vast majority of IT monitoring purchases are for technology stacks--- servers, networking devices, applications, etc.

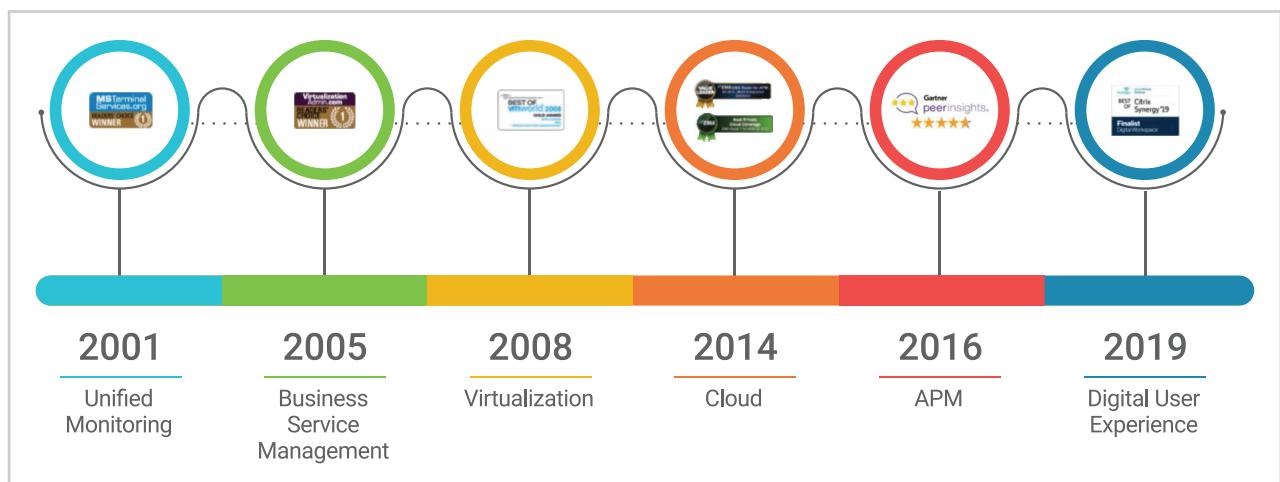
Domain-centric approaches tend to go deep into a specific technology. Domain-agnostic approaches collect information from other (domain-specific) toolsets and make sense of events by aggregating data across a portfolio of monitoring tools.

While there's no rule that says these approaches are mutually exclusive, it does present challenges for customers looking to optimize their investments in a portfolio of monitoring tools.

Organizations come in different sizes, with different levels of maturity and different application portfolios. There is absolutely no doubt that advances in machine learning, artificial intelligence and big data can be successfully leveraged to advance the state of the art in monitoring.

Twenty years ago, eG Innovations announced a dynamic baselining capability where the monitor learns the norms of all measurements (so we know at 8AM on a Monday morning what the CPU utilization of server 'x' should be) --- this leveraged what we know today as machine learning. What we referred to as 'root-cause analysis' and 'rules-free correlation' twenty years ago goes by artificial intelligence and 'causation analysis' today.

A unique aspect of the eG Enterprise architecture has been its ability to adapt to changes in the technology landscape as shown below.



Remember, tomorrow's always a day away. You must manage the digital user experience right now--- it is the basis of other transformative changes you're trying to achieve.

Unified monitoring has the potential to provide a level of transparency that is desperately needed in many organizations, and the digital workspace is an excellent place to begin.

Universal vs Unified Monitoring

What's the difference?

When eG Innovations announced their Universal Monitoring technology more than two decades ago, the ability to have the same agent deployed irrespective of the operating system or applications to be monitored was unique.

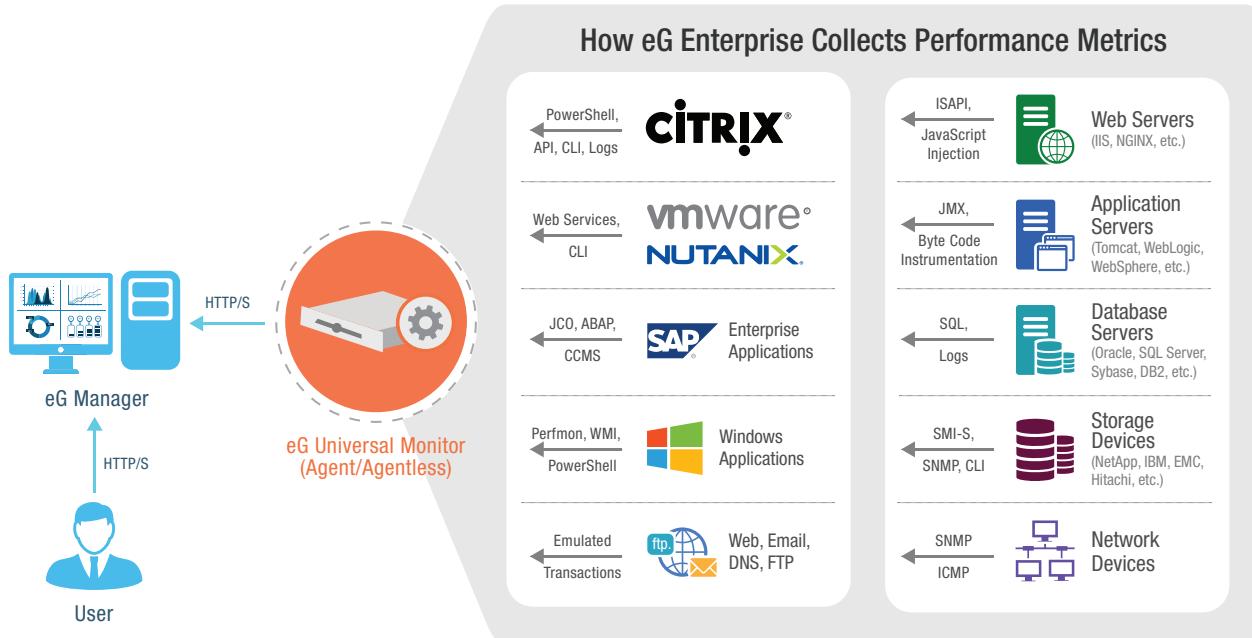
The same eG agent deployed on a server monitors the server hardware, operating system and all of the applications running on it. The agent monitor function is universal in the sense that the same license can be used to deploy an agent, allowing unparalleled deployment flexibility for IT managers. The Universal Agent can be deployed on gold images or remotely and rapidly pushed to target systems using any software deployment tool.

Since the agents are instructed by the eG Manager to perform tasks, they can use whatever method is called for-- SNMP, Perfmon, queries, APIs, and so on. The Universal Agents can be deployed remotely as a data collector or directly on a device such as a server. Today we might call these agents 'bots'.

Universal Monitoring

is a universal method of collecting data -- agent-based or agentless, active or passive, and using whatever data collection mechanism is appropriate.

The value to the enterprise is that it provides an effective basis for optimizing a portfolio of monitoring tools.



IT has long been seeking a 'single pane of glass'. But approaches to achieving this have varied wildly, from acquisition-based approaches, aggregation-oriented or analytics-based.

Acquisition-based approaches are just that--- acquire a portfolio of monitoring products and attempt to create a single pane of glass by creating a single view to all the underlying products. Of course, in these approaches

what's behind the curtain can often limit effectiveness. In many cases, the single pane of glass is cosmetic only---there's little real integration under the hood.

Aggregation-oriented approaches consolidate data but have left data collection to others. These approaches often don't unify all aspects of monitoring's purpose (detect events, make sense of them and determine the appropriate control action). These solutions may also limit opportunities to optimize the portfolio, since they rely on other monitors to collect data.

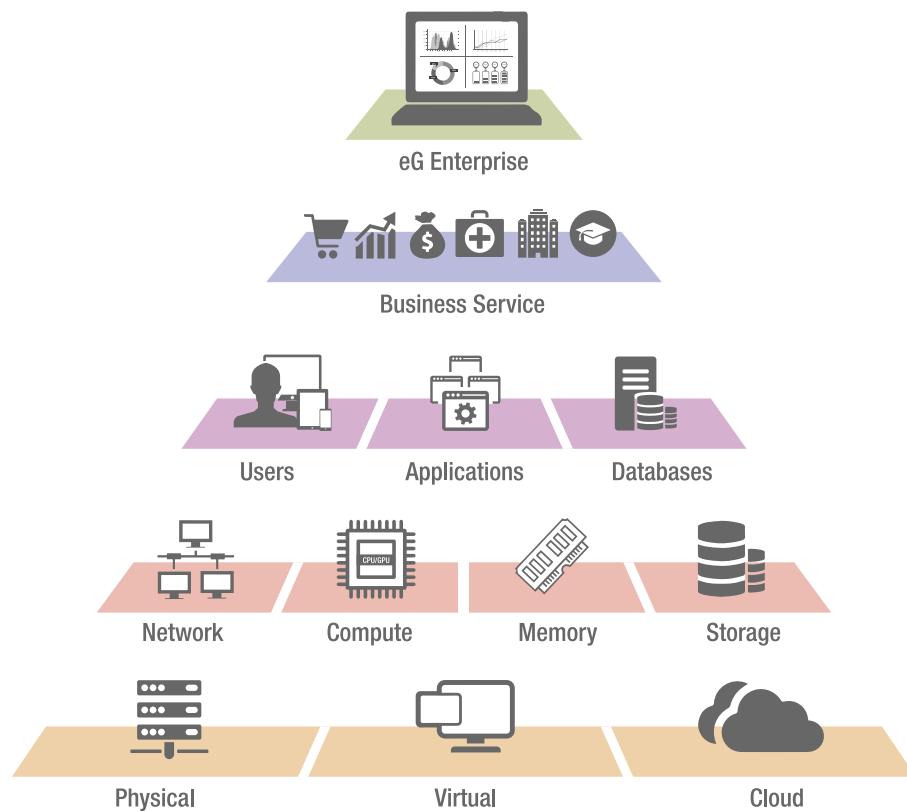
Analytics-based approaches are similar but aggregate algorithms and seek to integrate the analytics into the single pane of glass vision. These solutions are emergent.

The cross-domain and cross-tier visibility and automated diagnosis capabilities of a true unified monitoring solution enable a level of organizational transparency that is critical to IT transformation.

In fact, it is the key to a business case for unified monitoring, and this is frequently missed as organizations follow the flow headlong down the digital river.

A true **Unified Monitoring** solution is purpose-built with the single pane of glass vision and monitoring's purpose in mind.

It is no accident that eG Innovations has been claiming that it is no longer sufficient to use a silo-based approach for monitoring for over twenty years---unified monitoring is what we've always done.



Digital Workspaces and the Customer Experience

The digital workspace has become a mission-critical foundation for digital success. Three basic experience indicators for effective digital workspace performance include¹:

- Is it taking too long to log in?
- Have you experienced any errors?
- Have your applications and desktops been responsive?

Whether your digital workspace is based on Citrix, VMware, Microsoft, AWS or others, eG Enterprise proactively addresses these through 4 key capabilities:

1. Measuring all aspects of the user experience though synthetic and real user monitoring
2. Monitoring every layer of every tier of the digital workspace ecosystem
3. Automatically correlating the cause of performance anomalies
4. Providing real-time and historical analytics for rightsizing and optimizing digital workspace performance



Monitor all aspects of user experience



Gain actionable insights using machine learning and AIOps



Isolate the root cause of issues



Forecast capacity needs and right size the infrastructure



¹ There are other aspects and indicators of managing the experience of a digital workspace as well. Security, provisioning, administrative tasks, user interface elements, and other management areas are also important. The next section takes a 'deep dive' into the process river.

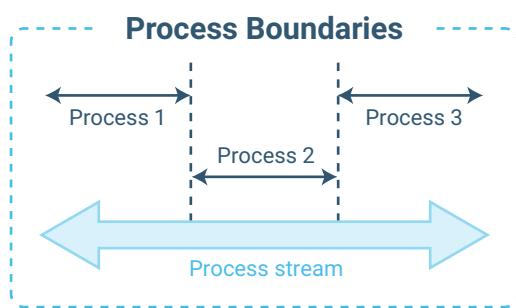
Processes, Services and Value Flows

A Deep Dive into the Process River²

Processes and Workstreams

One of the White Papers I read that really helped me understand the ongoing frustration with processes—business or IT processes—was *The Difficult Process of Identifying Processes: Why It Isn't as Easy as It Sounds* by Fred Nickols (Nickols, 2016).

What I liked about this paper was that it clarified for me that any process analysis must be based on agreed process boundaries. It began a fascination for me about how different stakeholders— even when we appear to be agreeing on these boundaries--- can really be on different pages.



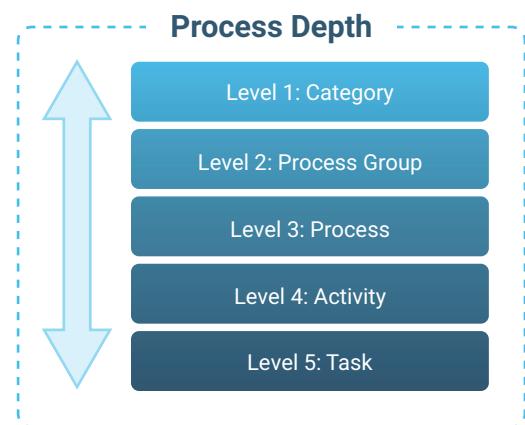
Picture yourself standing by the side of a shallow stream. In your hands are two stakes. You wade out into the stream and drive one stake into the bed of the stream. You say to yourself, "The process starts (or ends) here."

Now, you wade downstream (or upstream) 50 feet or so and drive the second stake into the bed of the stream, saying to yourself, "The process ends (or starts) here."

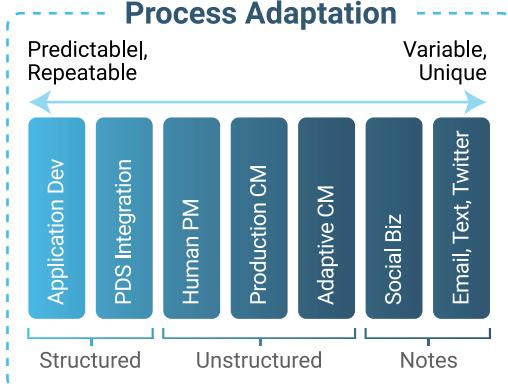
You're not fooled, are you? The process does not start nor end where you've driven the stakes into the streambed. At best, you have marked a portion of the stream for study or manipulation or some other purpose. The same is true when you "drive stakes" into the streambed of organizational activity as a way of defining business processes.

What can also complicate how we view and understand processes is the concept of process depth or level. The [APQC Process Classification Framework](#) (PCF) helps by offering guidance in this area. Basically the 'process river' has different 'depths' of process as well.

These 'depths' of process boundaries are also important to having a productive dialog about process improvement. Process frameworks like ITIL and APQC's PCF can help an organization with these challenges.



² Apologies in advance for allowing me to turn the process geek in me loose. While process is very important, nothing will de-rail a process improvement initiative quicker than a poor performing digital service. Remember, to digital consumers, there's no satisfactory excuse for a poor digital experience.



Finally, another aspect of process is its adaptability to change. Many streams of related activity are highly predictable and repeatable. Others are more variable and unique. The promise of [Adaptive Case Management](#) suggests that these streams of related activity are literally created and acted upon by knowledge workers as they work. While repetitive tasks have traditionally been the targets of automation, technologies like AI can rapidly adapt workstreams.

Adding to the complexity of process analysis is the fact that these streams of related activity involve people, and people work at different places on the 'river', at different depths and will have different opinions on what can (and should) be 'standard process' versus which should be 'adapted'.

...anchor your analysis of a business process to something or someone, preferably to a tangible product or, better yet, to the customer - (Nickols)

So anchoring process analysis is of primary importance, and the customer is the best anchor!

A variety of methodologies are available for business process improvement. These include Six Sigma, Lean Management, Lean Six Sigma, Agile Management, Re-engineering, Total Quality Management and many others. One in particular is the [Customer Expectation Management Method \(CEMM\)](#), by Terry Schurter.

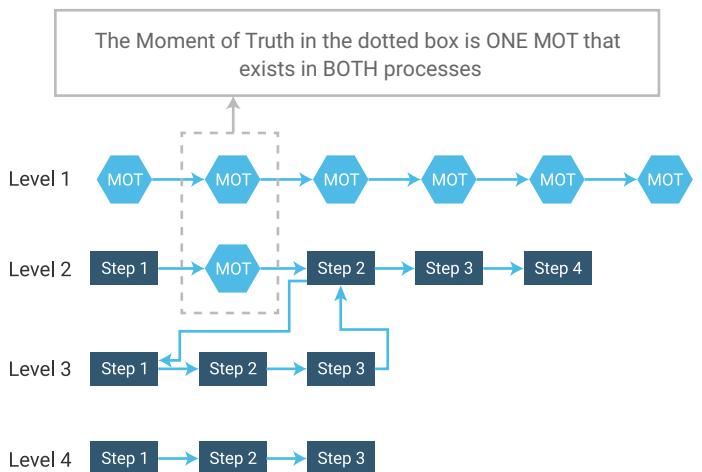
CEMM's concepts such as Successful Customer Outcomes (SCO), Break Points (BP), Business Rules (BR) and Moments of Truth (MOT) leverage many proven techniques from the TQM movement.

In this example, the red indicates moments of truth (MOT) which is anywhere the customer touches the business process or the business process touches the customer.

These 'level 1' processes are usually very closely aligned to business capabilities and are at higher levels of the process classification framework.

The customer journey mapping and value stream mapping popular today capture these **flows**--- which could represent a customer journey (service) or a segment of the 'process river'.

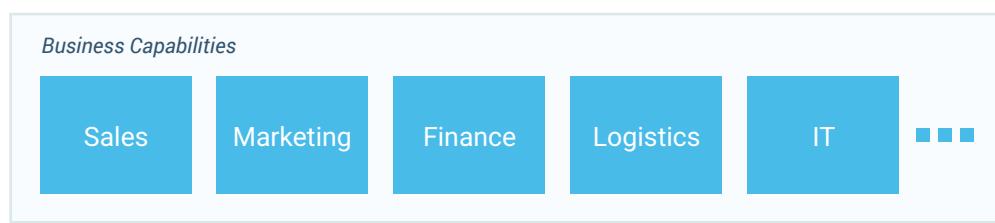
More than a decade ago, in an attempt to find [a business lane for customer's ITSM road maps](#) I tried to use CEMM in concert with ITIL improvement initiatives. Not surprisingly, it met with limited success since the stakeholders involved in ITIL were totally focused on IT-based process improvement, in spite of ITIL's claim to focus on services and value delivery to customers. In many cases the 'customer' we anchored improvements to were within the IT department itself!



Today's focus on managing the customer experience is a logical outcome of CEMM and [outside-in thinking](#), fueled by years of service management, more recently the DevOps movement and advances in technology. CEMM uses a business process approach that leverages many proven process improvement techniques.

In fact, **methodologies like CEMM may be more relevant today than ever.**

With the pervasive nature of technology in today's business processes, the digital reality is finally forcing the business to view IT as important a capability as Finance, HR and other traditional business areas. The question becomes, *what will IT do with this newfound leadership role?*



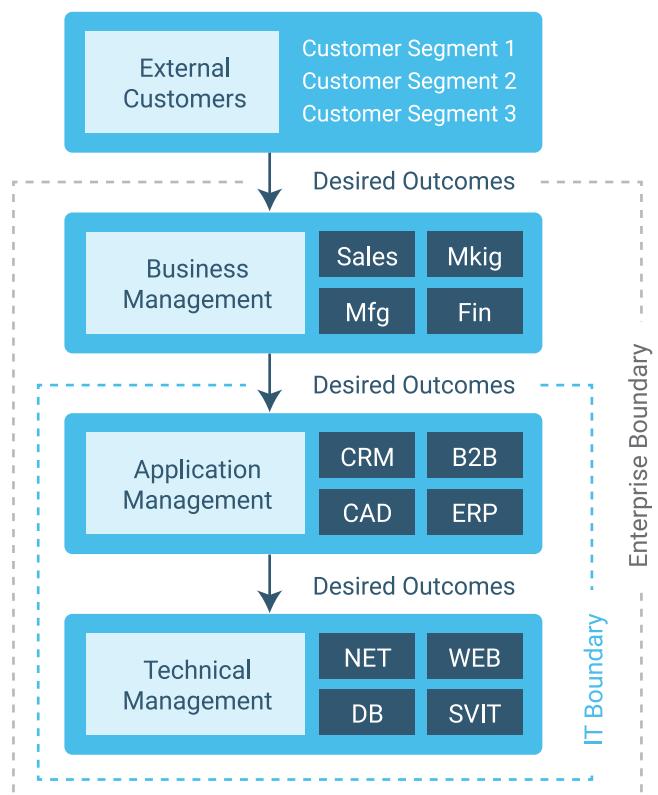
Customers and Value

An important quote in the Nickols' White Paper was from Peter Drucker:

What this means is that MONEY originates with the external customers of the business. No amount of cost-cutting, process efficiencies or elimination of waste will compensate for a lack of customers.

What does it mean to be customer-focused? It means that all improvement efforts can be directly or indirectly linked to the external customers of the business. This directly impacts ITSM (*and DevOps*).

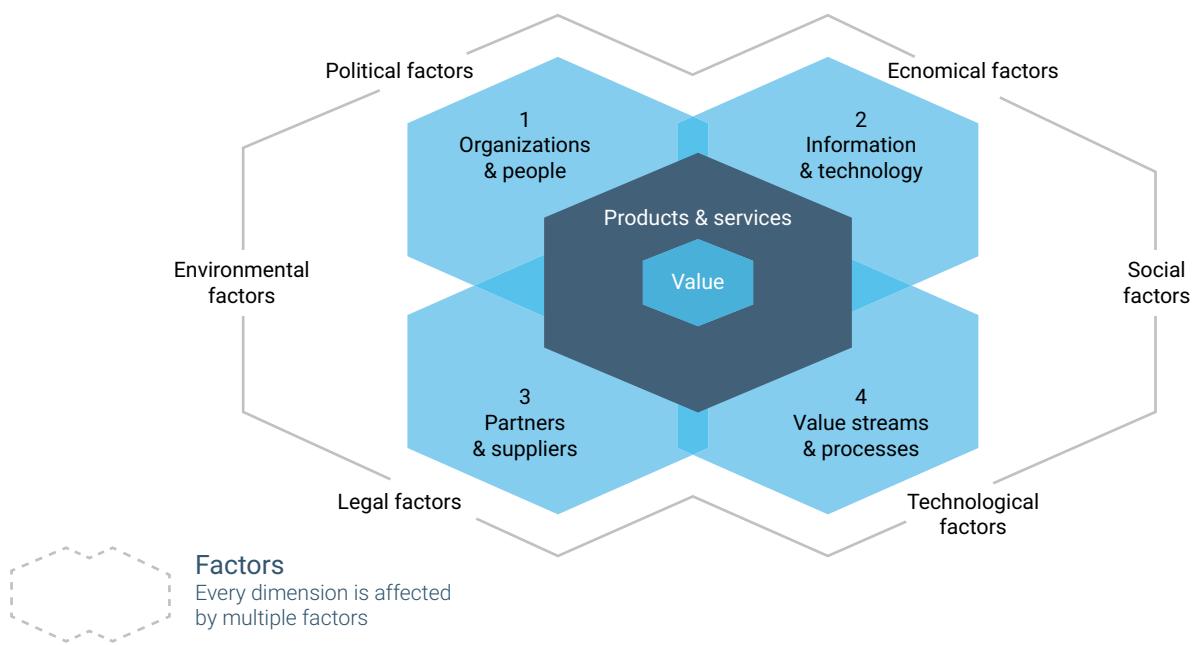
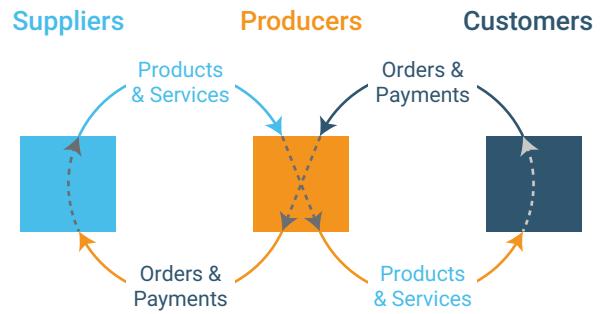
A 'systems view' of process comes with risk; commonly known as 'inside-out' thinking. It is interesting that the new ITILv4 guidance seems to acknowledge this by its reference to the 'dimensions' of service management and a much greater focus on external customers/consumers.



Results, as Peter Drucker points out, are always *outside* an organization

IT service management has always been about building an organizational capability focused on leveraging technology to accelerate and increase value delivery to customers.

*"The great shortcoming of the input-process-output paradigm is that it leads to a focus on the internal workings of a system so intense that the external world is sometimes ignored or overlooked. Yet, the **external world is a vital factor in the performance of all systems**. The relationship between an organization and its external world is characterized by transactions – by the exchange of outputs for inputs."*



"ITIL 4 recommends that organizations map the activity involved in delivering their products and services as service value streams—the paths of activity required to create value for the customer."

The four dimensions prompt people to look beyond the traditional IT perspective of technology to consider the broader service ecosystem—all the moving parts which combine to create value for the customer."

(AXELOS)

Other approaches to service management such as VeriSM™ have also recognized this reality and emphasize that all of an organization's capabilities can be leveraged when designing and delivering digital services.

"VeriSM™ is a service management approach for the digital age that helps service providers to create a flexible operating model to meet desired business outcomes."

VeriSM™ supports organizations to succeed in the world of digital services, using all organizational capabilities, from IT to Marketing and Finance to Customer Service, in order to deliver value."

Services and Service Management

In the post, [Process vs Service: What's the difference?](#) I summarized information from another post that outlined important similarities between processes and services. What struck me most was the quote (check the post for details). (Roseman, 2010)

Look at ITIL's evolution of the definition of an IT service:

'process and service are two complimentary views on the same capability of an organization'

ITIL v3 "A service is a means of **delivering value to customers** by facilitating outcomes customers want to achieve, but without the ownership of specific costs and risks."

ITIL v4 "A means of **enabling value** co-creation by facilitating outcomes that customers want to achieve, without the customer having to manage specific costs and risks."

In either case, a service is a means of delivering or creating value for customers. But since a process can be any stream of related activity, there could be processes--- particularly at lower levels--- that do not directly connect to customers. Does this mean the process is 'waste'?

Similarly, cloud providers are creating 'services' that deliver value but the connection to the customer is indirect at best. For example, the primary customer of IaaS services is often the IT portion of the enterprise. Does this mean the service is 'waste'?

So how can we connect the dots between customers, the business and IT? The original efforts associated with Total Quality Management (TQM) dates back to more than 50 years ago (i.e. Sherwartz, Deming, etc.) and ultimately led to business process management (BPM) in the late 1990's.

But for IT, even [after two decades of defining services, we still wrestle with 'what is a service'](#)? With the gold rush to the cloud we can have anything as a service (XaaS), and this can lead IT right back into their traditional comfort zone--- an inside-out view of a system (service) so intense we lose sight of its purpose (a means of creating/delivering value to external customers).

It is also critically important that IT recognize that just as TQM led to a variety of methods and techniques--- all of which can be applied in continuous improvement--- movements like DevOps and frameworks like ITIL are not mutually exclusive.

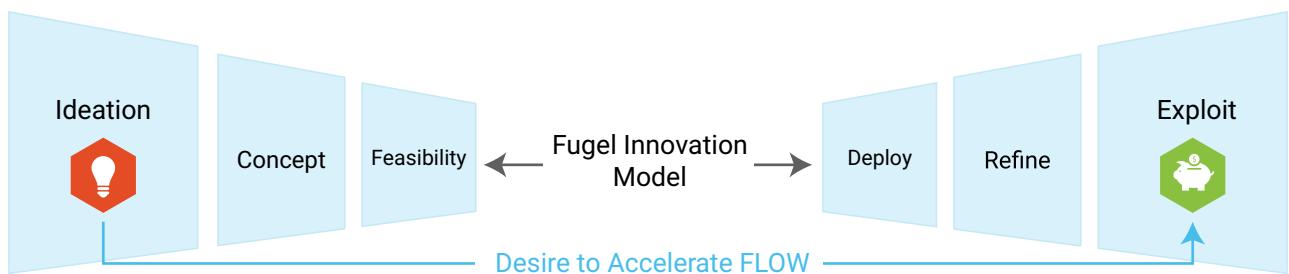
In fact, all of these have become part of a continuous improvement tool kit and we need to share what works (and when) with each other now more than ever. Both the ITIL® v4 and VeriSM™ guidance make that clear.

In a world full of [shiny new objects](#), we need to stay focused on what works and most importantly--- **on the customer**.

Flow and IT Operating Model Perspectives

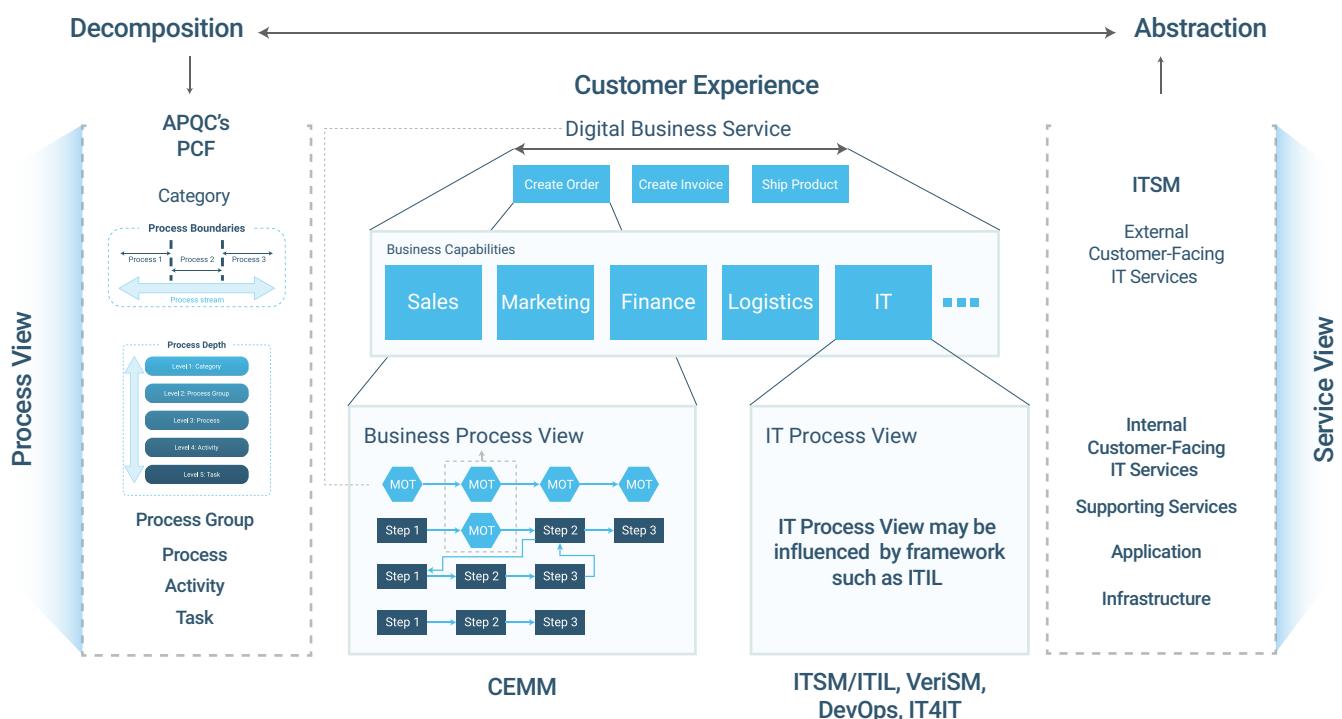
Fugle Innovation Model

It's important to recognize an initial driver of the DevOps movement. As businesses seek to identify business process/service improvements--- many driven by technology enablers --- a logical outcome was a desire for IT to deliver value to customers faster.



The [Fugle Innovation Model](#) (Du Preez & Louw, 2008) is based on a generic innovation process and has a 'funnel' on one end and a 'bugle' on the other. Ideas enter the funnel on one end and are exploited on the bugle end. The business wants the 'Ah Ha!' moments to be accelerated to 'Ka Ching!'³ moments as quickly as possible.

This is basically what accelerated flow is about. So, IT now sits as a fundamental business capability just like Finance, Sales, HR, and so on. The ability to deliver value to the external customers of the business depends on these capabilities, so regardless of whether we take a 'white box view' (i.e., process view) or a 'black box view' (i.e., service view), value delivery will involve multiple business capability areas and be impacted by external factors such as suppliers, regulatory, technology, etc.



³ I could not find the originator of this; my best guess is Patrick Debois

What's sometimes missed is that improvements at lower levels of processes and/or services can also have an impact on customer experience. When customers are directly touching the process/service (i.e., moments of truth) the impacts are easy to see.

But improvements--- particularly at lower levels of processes/services--- can and do also happen in the 'refinement' stage of the innovation model.

The emergence of the Agile Manifesto led to the acceleration of software development, which led to a desire to accelerate delivery (i.e., Dev to Ops) but today we seek to extend this ***all the way through the IT service 'value chain(s)'***—from ideation all the way to exploitation.

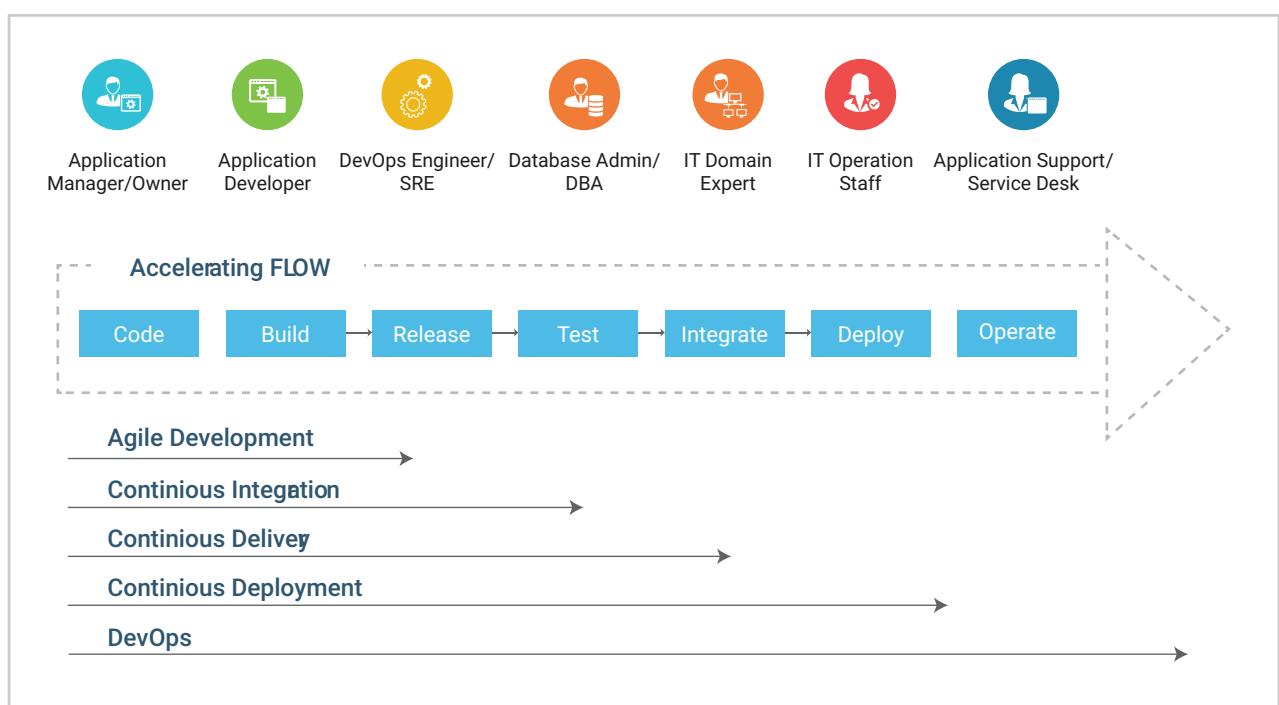
With the DevOps movement becoming 'mainstream', more efforts are being made to automate all aspects of IT delivery and the focus on accelerating FLOW (Ah Ha! To Ka Ching!) continues to increase exponentially.

But lessons of the past have taught us that simply automating a bad process will not lead to success; relentless focus on the digital user experience will be key to success in the digital age, and '**connecting the dots' between the customer, the business and technology as the digital age accelerates is more important than ever.**

DevOps (People)

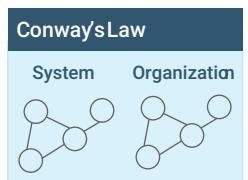
The acceleration of FLOW (Ah Ha! To Ka Ching!) benefits both the business and customers; the customers get value and the business makes money. So ITSM, DevOps and architectures like the [IT4IT Reference Architecture](#) all focus on 'streams of related activities'.

From a DevOps perspective flow centers on accelerating the movement of work through a continuous delivery pipeline. While this involves people, process and tools DevOps started as a movement and is highly focused on driving the cultural changes required to make this a reality.



As DevOps moves from left to right the number and perspective of different stakeholders' changes, sometimes dramatically. This is putting pressure on traditional silo-based organizational structures. Organizations are increasingly creating cross-functional teams, and these teams should be aligned to customer outcomes.

In fact, the book [Team Topologies](#) suggests the creation of 'stream-aligned' teams. Combining the [team topologies approach with unified monitoring](#) can help avoid the effects of Conway's Law and provide clear guidance on how teams should communicate.



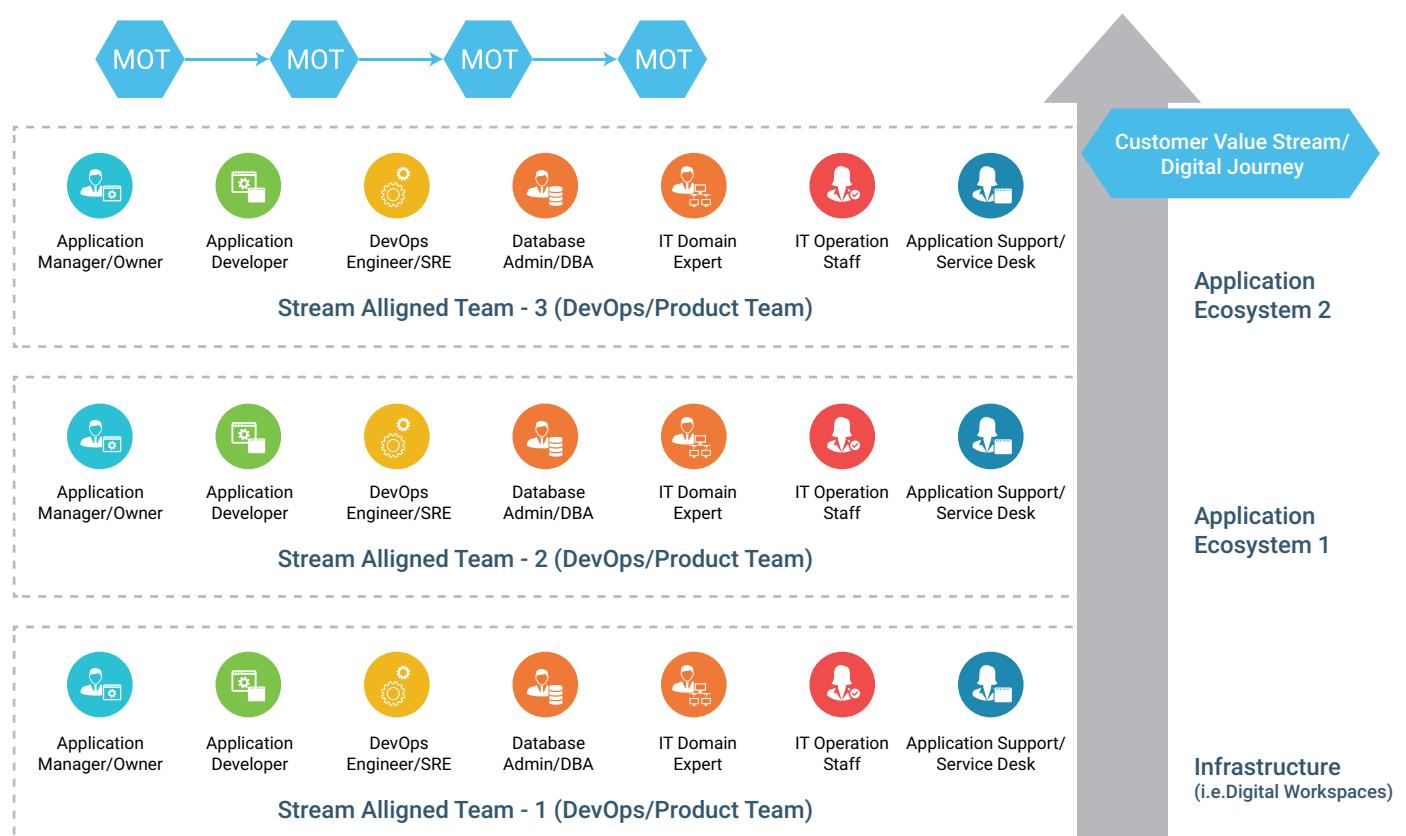
"...increased collaboration is not always the same as increased communication."

- Skelton, Matthew. *Team Topologies (Kindle Locations 3273-3274)*.
IT Revolution Press. Kindle Edition.

For example, team 1 may be a platform-aligned team and other teams view the platform as a 'service', such as a digital workspace. Teams 2 and 3 may be aligned to different application ecosystems or microservices.

While stream-aligned teams can be effective as outlined in Team Topologies they still need to remain aligned to customer outcomes, and this excellent book provides organizations with suggestions on what has worked for other enterprises.

What's important is that the inter-team communication remain aligned to customer outcomes--- the value stream and/or digital journey.



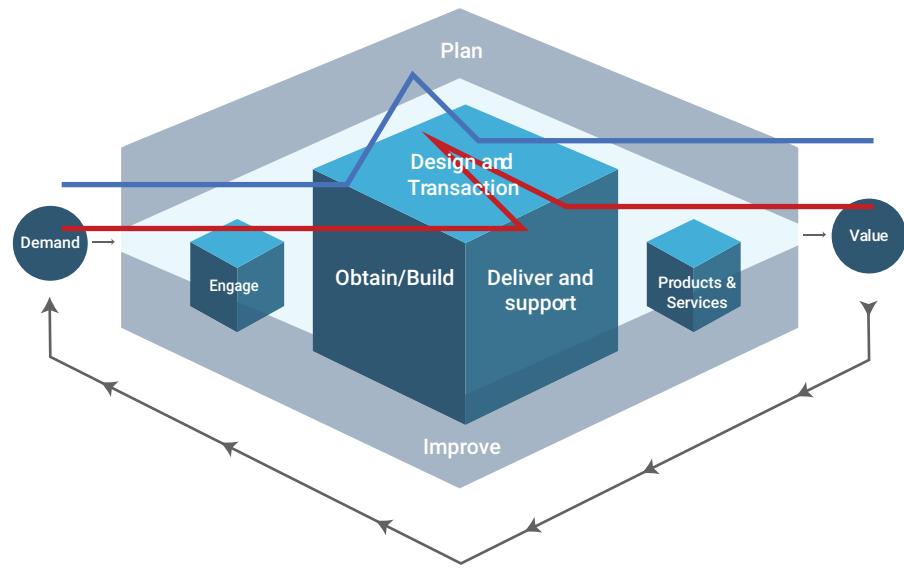
In any case, **IT processes and services run wide, deep and change rapidly. Organizations need to take a 360° view of user experience and make it a central component of their IT monitoring strategy.** All teams need total performance visibility to navigate today's digital river!

ITSM (IT Process)

While DevOps focuses on accelerating overall flow, as we move down the process hierarchy (deeper in the process 'river'), actual activities and tasks are engaged. These streams of activity rely on core ITSM processes and practices, which are adapted based on the needs of each organization.

For example, the flow in **RED** may represent an Incident and the flow in **BLUE** may represent a Request for a new feature. There may be many different flows, some automated (repeatable) and others that are adapted based on real time circumstances.

Guidance such as **ITIL®** and **VeriSM™** provide a wealth of information customers can use to establish and increase process capability and maturity associated with IT practices.

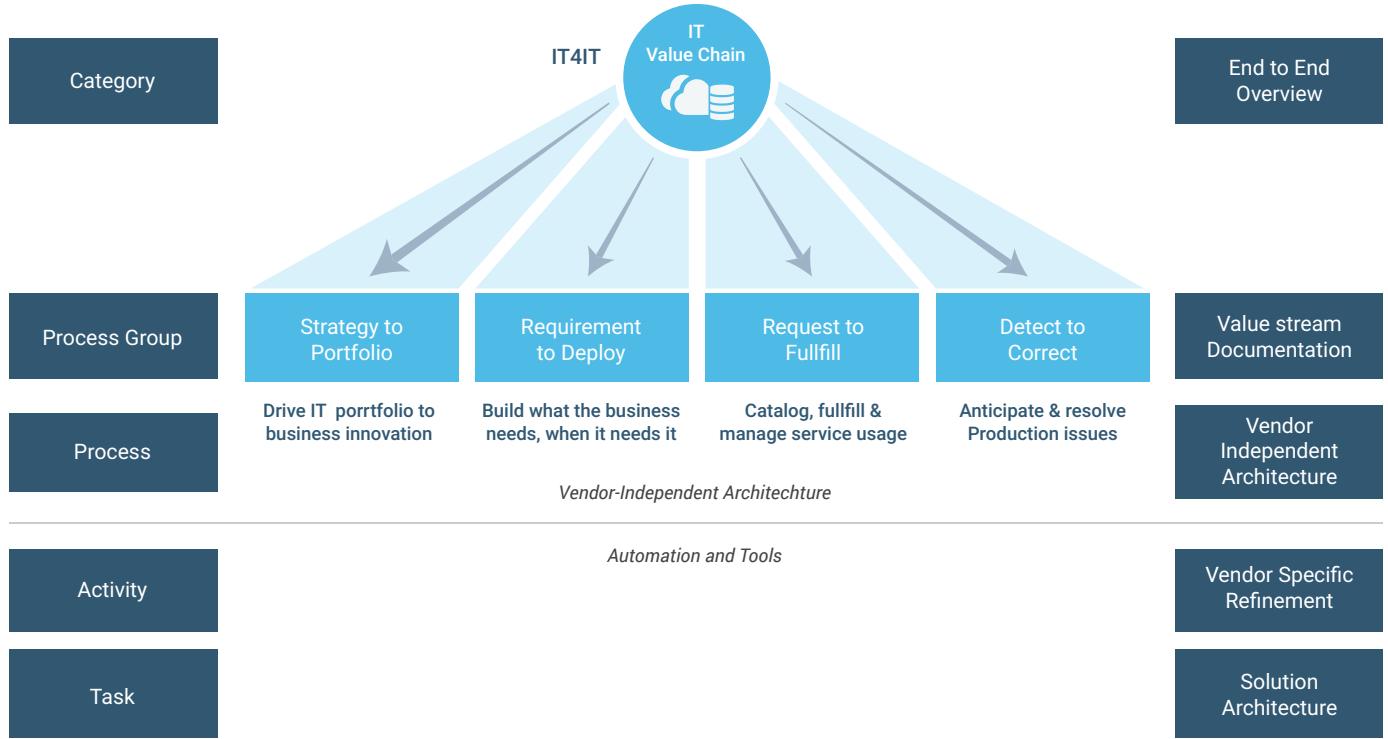


IT4IT Reference Architecture (Tools/Technology)

IT4IT is a reference architecture that focuses on the information needed to manage IT and the flow of data between IT management systems. Like DevOps and ITIL v4, it segments the activities into logical streams of work.

| Guidance | Workstreams |
|-----------------|--|
| DevOps: | Agile, Continuous Integration, Continuous Delivery, Continuous Deployment |
| ITIL v4: | Engage, Obtain/Build, Design & Transition, Delivery & Support, Plan & Improve |
| IT4IT: | Strategy to Portfolio, Requirements to Deploy, Request to Fulfill, Detect to Correct |

Since IT4IT focuses on data flow, it identifies where the 'depth' of process analysis becomes vendor or tool-specific (activities and tasks). Each segment of the overall IT value chain can be analyzed, at different depths of process--- value streams (i.e., Detect-to-Correct) and process groups (i.e., Deliver & Support) or at a specific process level (i.e., Incident Management).



DevOps, ITIL, IT4IT and VeriSM all describe IT work streams and ***flow***.

Operating Models and Co-Creation

The relentless drive to co-create value with customers accelerates change at every level of an IT operating model. People are forming 'stream-aligned' teams, Processes are constantly being optimized (at every level of the 'process river'), and Tools are being swapped in and out based on team needs.

This has significant impacts on technology monitoring, since it is a broad-based activity that triggers many different processes and increasingly touches virtually every area of the customer value stream. Whether this 'touch point' is direct (as in a customer's use of mobile technology) or indirect (such as using a cloud service), misses the point.

Unless you connect the dots across and at every level, it's easy to create customer chaos instead of customer value.

Process Improvement and the Digital Workspace

The allure of AI and automation is so compelling that it can totally consume an organization's focus.

In about 60 percent of occupations, at least one-third of the activities that make up a specific job could be automated.

- McKinsey



But nothing will de-rail a process improvement initiative quicker than a poor performing digital service. Remember, **to digital consumers, there's no satisfactory excuse for a poor digital experience.**

The costs of a poorly performing digital workspace are often hidden. Improvements that might happen at lower levels of processes and/or services do not materialize when employees are busy in war room meetings or wrestling with poorly performing services.

This not only has an impact on customer experience, it can stifle where real improvements often originate---at lower levels of processes/services (and organizations).

So, while process improvement is important and ongoing, establishing and maintaining a digital workspace that 'just works' is a foundation for future improvement.

Monitoring the performance of your digital workspace with eG Enterprise can be a good first step in a unified monitoring road map.

Connecting the Dots

Once you've established a secure, well designed and consistently performing digital workspace employees can really focus on the customers that really matter--- the external customers of the business.

What often happens as a result of implementing eG Enterprise for monitoring the digital workspace is that organizational capabilities around performance management are also enhanced or developed.

So, the organization is prepared to expand the customer experience journey or enhance an existing journey.

The Business Capability Iceberg

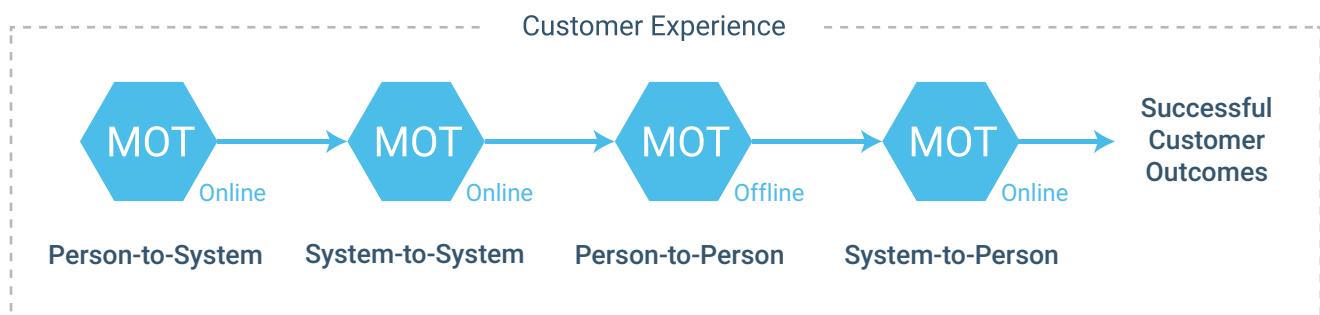
If you put customers at the top of your priority list--- and in the digital age you'd better --- then you begin to see how removed the underlying technology can be from customers. While a consumer may use a device like an iPhone every day, there's an unbelievable array of technology that must work in harmony to deliver a successful customer outcome. The vast majority of this technology is invisible to the consumer.

Unless something doesn't work.

Successful Customer Outcomes & Moments of Truth

Companies have been using outside-in techniques **for** many years. Successful Customer Outcomes (SCO) apply to processes covering a complete interaction with a customer, and to be successful the outcome must make the customer's life simpler and easier⁵. The Moments of Truth (MOT) are anywhere the customer touches the business process or the business process touches the customer.

This is one way to measure the customer journey and represents the business value stream from the eyes of the customer. This sits on the top of the business capability iceberg.



⁴ outside-in development focuses on satisfying the needs of stakeholders. The underlying theory is that to create successful software, the team must have a clear understanding of the goals and motivations of the stakeholders. The ultimate goal is to produce software that is highly consumable and meets or exceeds the needs of the intended client. (Wikipedia)

⁵ The Successful Customer Outcome Toolkit, v1 – www.ipapi.org

Business Capability Areas

Organizational capabilities define an organization's identity and personality. They are critical to differentiating a company from their competitors.

"...organizational capabilities, as we call them, are key intangible assets. You can't see or touch them, yet they can make all the difference in the world when it comes to market value."

"These capabilities—the collective skills, abilities, and expertise of an organization—are the outcome of investments in staffing, training, compensation, communication, and other human resources areas. They represent the ways that people and resources are brought together to accomplish work."

– Harvard Business Review, Capitalizing on Capabilities⁶

Business Capability Areas

Talent | Speed | Shared Mind-Set/Identity | Accountability | Collaboration | Learning

Leadership | Customer Connectivity | Strategic Unity | Innovation | Efficiency

Harvard Business Review, Capitalizing on Capabilities, Norm SmallwoodDate Ulrich

Sales

Marketing

Finance

Logistics

IT

■ ■ ■

While organizations create functional structures that group these capabilities into departments, this is precisely why customer experience must sit at the top of the capability iceberg. Customer outcomes almost always span multiple business areas, including IT.

The real question is, how do we connect the dots across what seems like an endless stream of digital processes, services and the underlying technology?

Measurement Frameworks

There are a wide variety of approaches and methods that organizations use for decision making, and when successfully implemented they:⁷

- Focus the enterprise on what is important (desired behaviors and outcomes),
- Link strategy and tactics,
- Help assess performance against a baseline,

⁶ <https://hbr.org/2004/06/capitalizing-on-capabilities>

⁷ APQC; Measurement Frameworks <https://www.apqc.org/sites/default/files/files/Measurement%20Frameworks.pdf>

- Provide feedback that guides change, and
- Supply support for business cases.

One very common measurement framework is the balanced scorecard. Even after more than two decades this guidance remains a proven, flexible, adaptable, management framework.

The reason for its popularity lies in the word ‘balance’. Organizations must address all areas of the balanced scorecard in order to continually build organizational capabilities.

“I still find The Balanced Scorecard a powerful methodology to develop strategic initiatives, KPIs and metrics.⁸”

| Balanced Scorecard | | | |
|---|-----------------------|---|--|
| Financial/ Stewardship | Internal Process | Organizational Capacity/ Learning & Growth | Customer/ Stakeholders |
| Financial Performance Effective resource use | Efficiency Quality | Human Capital Infrastructure & Technology Culture | Customer Value Satisfaction/retention |

Business Process & Digital Services Perspectives

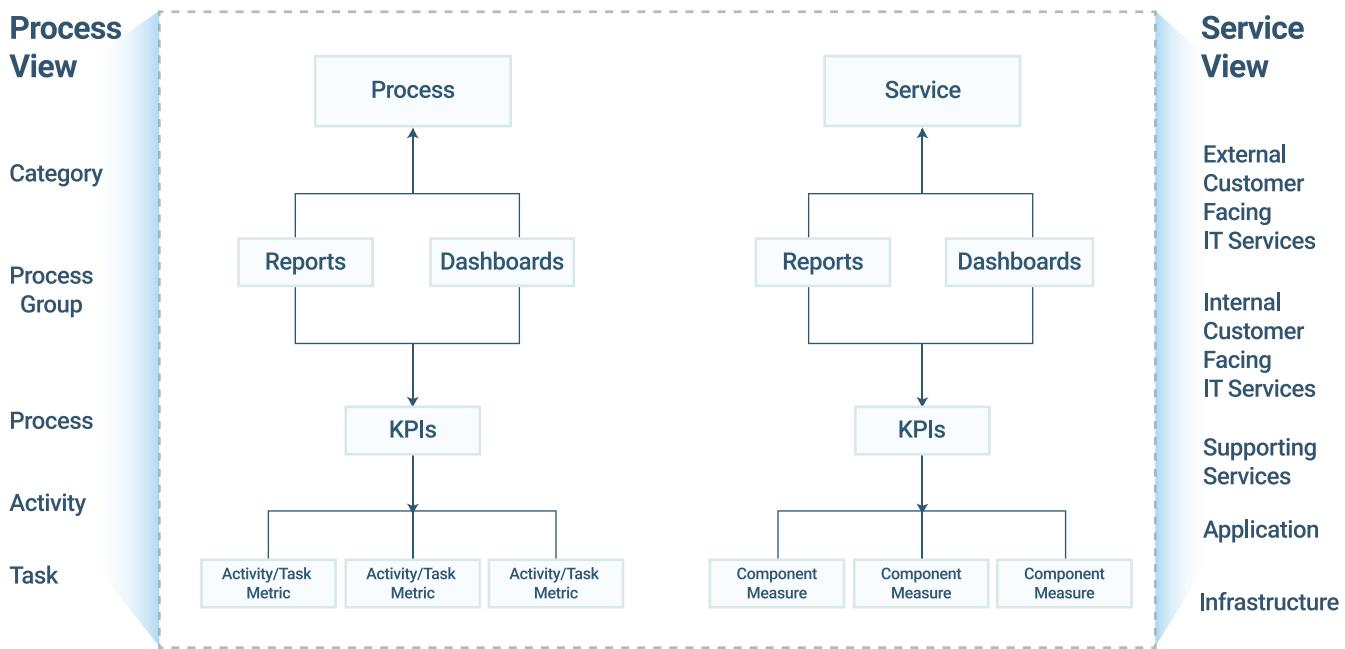
As stated earlier, **process and service are two complimentary views on the same capability of an organization**. Both must be aligned to successful customer outcomes, and both depend on the capabilities of the business. For this reason and others, process and service improvement efforts should be closely aligned.

The levels of processes and services we are measuring are critical to connecting the dots between customers, business processes and technology. The flows running through your digital river will span different capability areas (i.e., business units, suppliers, etc.) and technology domains (applications, infrastructure, etc.).

This is the challenge associated with the **business capability iceberg**. Analyzing and accelerating ‘FLOW’ across different streams of related activity in an enterprise will require monitoring across all of these measurement areas--- every one of these key performance indicators (KPIs), metrics and measurements must be connected to the top of the iceberg, whether you happen to be travelling through an eddy, a riffle or a rapid.

And the best way to do this is by starting with end users.

⁸ Dragon, Dave. I Solve Mysteries: The Art and Science of Business Process Optimization and Transformation . Silver Tree Publishing. Kindle Edition.



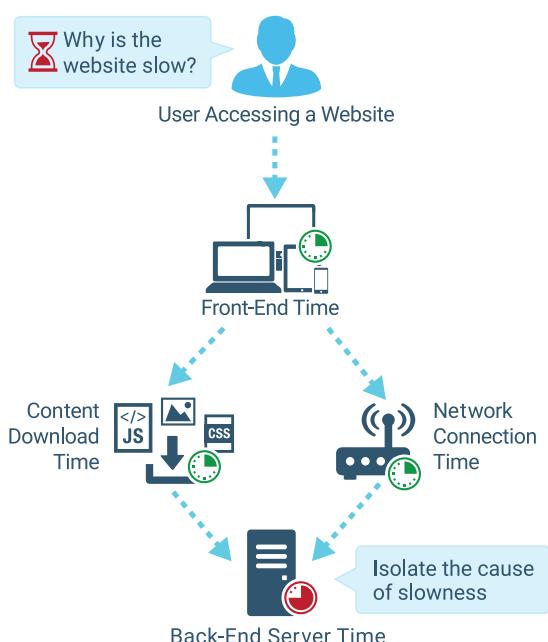
Digital Performance Monitoring

Connecting the Dots with Converged APM/IPM

Top-down, outside-in--- regardless of the buzzwords the customer is king in the digital age. So, it only makes sense that before we get lost in the [monitoring weeds](#) we start with what matters; End Users.

While you may have requirements to monitor specific technologies or platforms, always start your discussion with how these technologies and/or platforms connect to end users.

Real & Synthetic User Monitoring



Insights into the performance and stability of websites and web applications are essential to retain customers and grow your business. Traditional data center-centric views of IT performance do not provide the complete picture of actual user experience.

While these can provide high-level uptime/downtime analytics, they lack actionable insights of real user experience and service slowdown, a critical need for IT managers to preemptively detect and resolve issues.

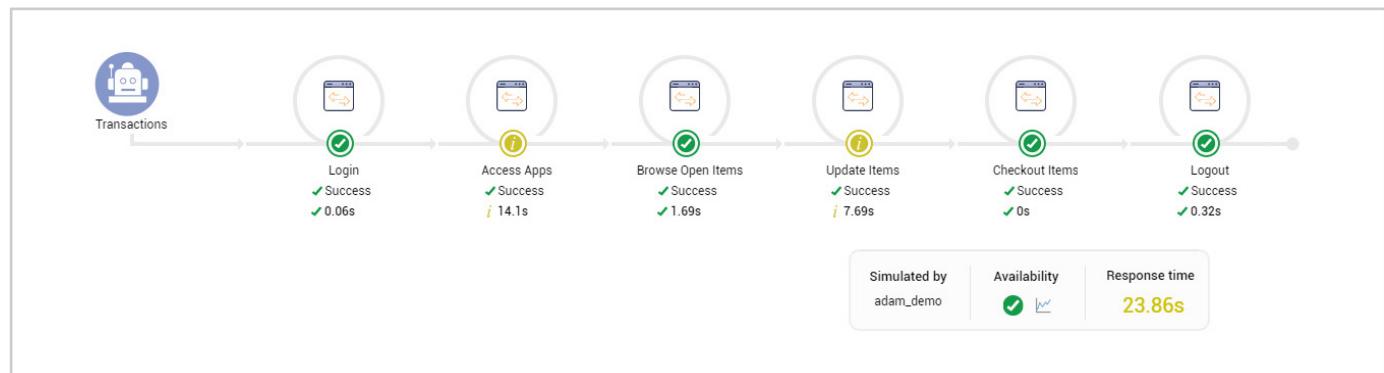
The enterprise needs complete visibility into the [real user experience](#) by monitoring every user, anytime, from anywhere, on any browser, from any device. eG Enterprise uses an agentless approach to passively and continuously monitor end-user experience in real time.

However, passive monitoring approaches are not effective when users are not actively using the applications, or when instrumentation is not available (for example, legacy applications and custom applications).

Synthetic monitoring approaches can actively and continuously test business transactions and proactively identify performance problems before users are impacted.

Business Transaction Monitoring

Simulated and real user monitoring can also provide an ability to monitor the complete digital journey taken by customers and identify which step (often a Moment of Truth) has failed or is slow.



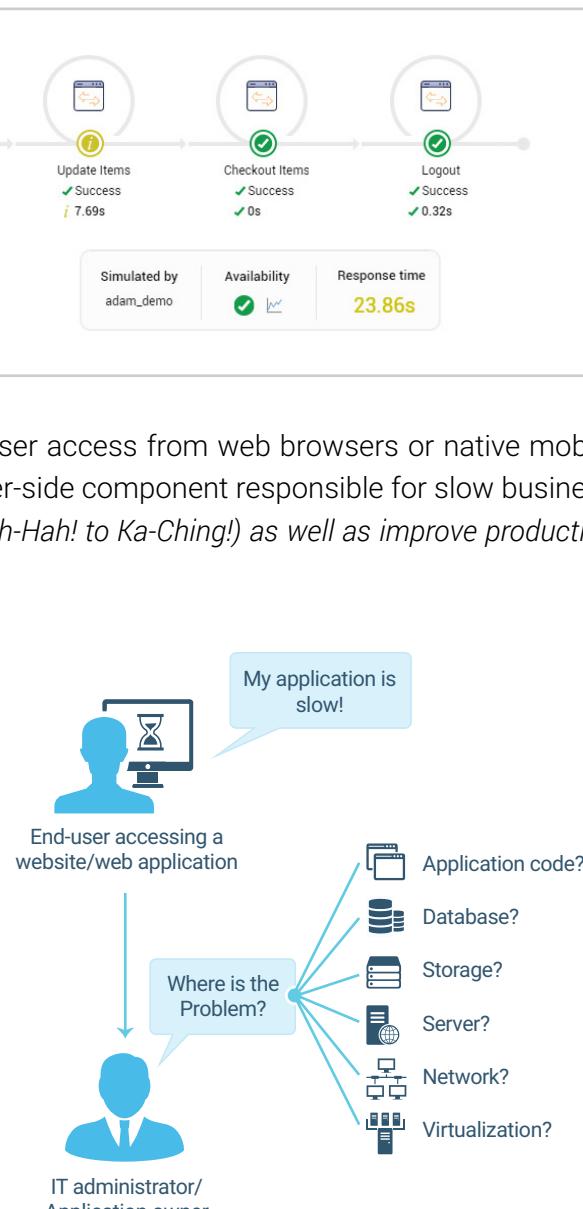
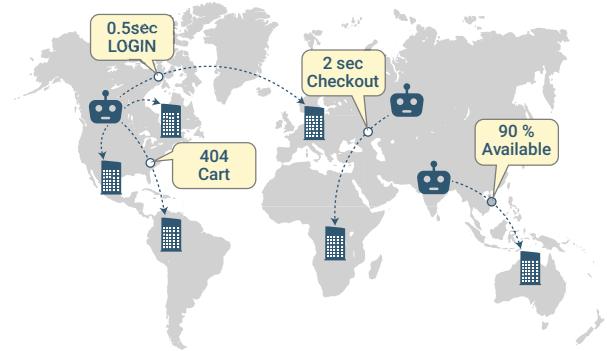
Business transaction tracing can also automatically trace user access from web browsers or native mobile applications to the application server and pinpoint the server-side component responsible for slow business transactions. This can accelerate testing in pre-production (*Ah-Hah! to Ka-Ching!*) as well as improve production support.

Application & Infrastructure Monitoring

Without a truly unified and holistic view of all factors—across applications and the infrastructure—that affect the user experience, you are effectively flying blind.

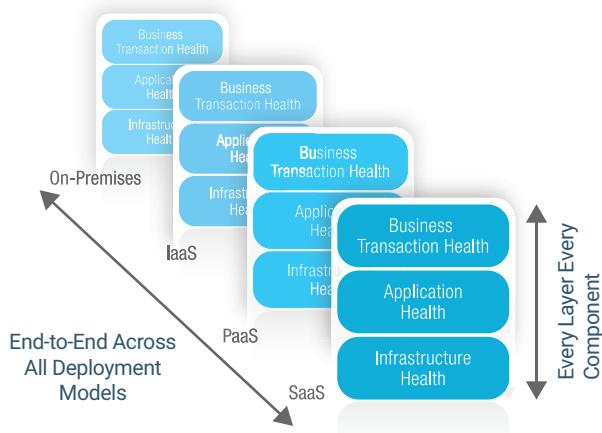
Today's multi-tiered application architectures make it difficult to manage performance. Due to complex inter-dependencies between application tiers, the dynamic nature of application rollouts, and deployment on heterogeneous platforms (physical, virtual, and cloud infrastructures), IT teams often spend hours trying to determine the root cause of application slowdowns.

A modern **application performance management** solution automates:



- Continuous tracking and measurement of end-user experience on applications, websites and services via real and synthetic user monitoring
 - Analysis of business transactions (digital workflow) and determines if the issue is due to the application code or not
 - Analysis of the health of all the underlying infrastructure tiers to isolate the cause of performance issues

Enterprise Applications and the Cloud



Enterprise applications like SAP, Siebel and PeopleSoft are business critical. Slow or poor performance of these applications can result in revenue loss for businesses, unhappy users and lost productivity. Whether a public, private or hybrid cloud infrastructure is used, holistic performance visibility is required to ensure successful service delivery and achieve high efficiency.

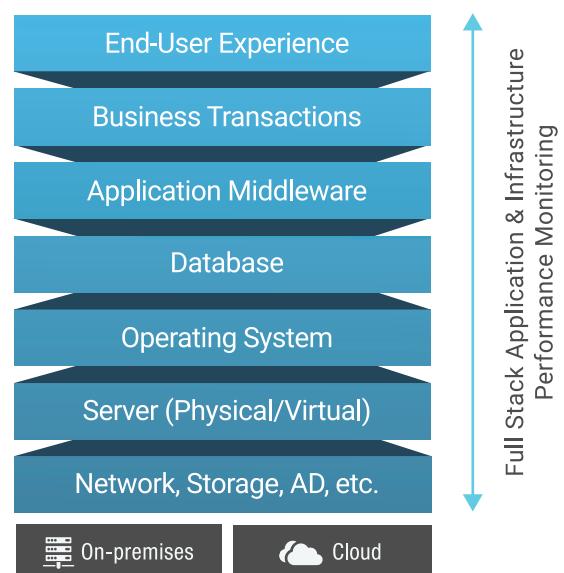
These applications and services typically have multiple inter-dependent tiers, multiple domains of control and shared workloads. Without visibility across [public](#), [private](#) and [hybrid cloud](#) ecosystems connecting the dots will be problematic at best.

Modern applications are built on a microservices architecture with [containers](#) as the means for deployment and operation of application components and [Kubernetes](#) as the platform for orchestration, to automate and manage container provisioning. The performance of these distributed and elastic applications depends on how the container orchestration is set up and how resources are provisioned dynamically to support automatic scaling, based on business need.

Customers need unified performance visibility into the Kubernetes orchestration environment, the containers provisioned, and workloads running on them.

While most of these infrastructure components are invisible to consumers, the ability to monitor all aspects of your on-premises and cloud environments – across servers, applications, virtualization, storage, containers, and more--- is critical to assuring digital service performance.

The enterprise must automatically discover dependencies, track infrastructure changes, and auto-diagnose whether slowdowns are originating due to an application code error, network slowdown, database issue, storage bottleneck, server misconfiguration, or virtualization problem.



This suggests that intelligence and analytics will be critical enablers of effective technology monitoring.

Connecting the Dots with Converged APM/IPM

Converged APM/IPM provides real-time and historical views of each customer's digital journey and can help you connect the dots between your experience indicators and the underlying complexity associated with SLAs and KPIs.

Real-time dashboards showing user locations, device types, user experience indexes and other information quickly identify when performance is degrading so preventive actions can avoid user impact.



In addition, get pre-correlated views of user history including each step along every layer of every tier of every transaction if desired and capture business context data as well.

This could include items added to a shopping cart or any relevant other business context information.

The Digital Workspace as a Starting Point

The digital workspace is rapidly becoming a foundation for many, if not all, digital services. Regardless of whether your digital workspace is based on [Citrix](#), [VMware Horizon](#), [Microsoft RDS](#), [AWS Workspaces](#) or others, this technology framework provides a unified, contextual and secure user experience.

These ecosystems also have multiple inter-dependent tiers and are often a good starting point for beginning a journey towards unified monitoring. Understanding the various end users and ecosystems that will be delivered over the workspace(s) is a critical first step along the transformation path ---

always start your discussion with how these technologies and/or platforms connect to end users.

Digital Performance and Unified Monitoring

The ability to converge end user, application and infrastructure monitoring provides total performance visibility to an enterprise. While this can be accomplished using different approaches, unified monitoring provides a mechanism to optimize a portfolio of monitoring tools (over time!) as well as embed analytics and artificial intelligence to automate monitoring.

By collecting measurements at every layer of every component of a digital business service, automatically learning the norms of all measurements, and using embedded analytics to automatically isolate which layer of which component is the source of a performance issue customers can effectively connect the dots from their end users to the complexity that lies beneath the business capability iceberg.

eG Innovations has been on this path for two decades and can help customers create a road map to unified monitoring that keeps them focused on customers.

Next Steps

For more information, please visit www.eginnovations.com/solutions/converged-application-infrastructure-monitoring

Email us at info@eginnovations.com



WEBINAR REPLAY

Check out this 30-minute webinar which includes a few demonstrations of these capabilities.



LIVE DEMO

Request a personal walkthrough to learn first-hand how eG Enterprise can help you connect the dots between customers, business and technology.



FREE TRIAL

15 days of free monitoring and diagnosis, in your own infrastructure. Try it and learn exactly how eG Enterprise helps you ensure a great user experience for your end users.

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