The Importance of Monitoring for ITSM and DevOps

Visibility, Transparency and IT Transformation

An eG Innovations White Paper

eG

Total Performance Visibility

Executive Summary

The hurdles faced in attempting to automate IT monitoring environments are like the challenges facing IT transformation programs, whether those programs seek to leverage ITSM, DevOps or a combination of both approaches.

Like IT transformation, monitoring is a broad-based activity that triggers many different process flows, and is implemented at many different organizational levels and perspectives, impacting people, processes and technology. From a technology perspective, the sheer number and diversity of monitoring tools continues to fragment automation attempts, often diverting organizations from achieving a true services orientation and perpetuating the status quo.

IT transformation and monitoring are not always well understood and often do not address the human elements required to ensure success. From a monitoring perspective, IT is addressing rapid technical change and complexity in monitoring environments by collecting large amounts of raw data and providing visibility and information to stakeholders. But this information must be analyzed, and increasingly at speeds far faster than humans can perform.

The result of monitoring analysis is *actionable knowledge* that provides a basis for automation, but it also tells us why we do what we do and drives organizational learning. This is the basis of transparency, and transparency is essential for organizational trust.

Without transparency, trust erodes and transformational change will break down. Technology monitoring, particularly *services-oriented* technology monitoring, can be an important part of an IT transformation effort and help to improve both visibility and transparency.

Monitoring can help your IT transformation efforts anticipate the people and process interfaces that will invariably emerge because of monitoring's inherently broad organizational scope. This is particularly true with services-oriented monitoring, since services will almost always cross organizational boundaries; precisely what many transformational change efforts require.

Agreeing on service measurement priorities focuses the organization on business and IT drivers such as improving customer-facing IT services and/or reducing the costs associated with making sense out of complex IT events.

Services also provide the context needed to understand business impacts and dependencies. This services context helps align different levels of organizational change activities.

Establishing a baseline of existing performance has traditionally been a best practice – it is even more critical with a move to cloud computing – and baselining also requires monitoring to be established. Ongoing cycles of baselining can mirror improvement cycles that are often key program elements of an IT transformation.

Finally, effective analytics can accelerate your IT transformation by providing real transparency to IT and business stakeholders. Analytics makes sense of events across end-to-end IT services—a major area of opportunity for most IT organizations.

What is IT Transformation?

Understanding Organizational Change and IT

There's little doubt that the traditional role of IT is changing; we hear about transformation everywhere. The workplace, the workspace and even the work itself are changing at an ever-increasing rate.

But after 15 years of attempting to shift IT mindsets to a services orientation, we still see statements like this:

> *IT transformation is a complete overhaul of an organization's information technology (IT) systems. IT transformation can involve changes to network architecture, hardware, software and how data is stored and accessed. Informally, IT transformation may be referred to as* "**rip and replace**."
>
> **TechTarget Blog**

Sentiments like this indicate a mindset that is still focused entirely on the system – network architecture, hardware, software and data – with little emphasis on people. In a world of outsourcing, shrinking IT budgets and cloud computing, phrases like 'rip and replace' may not be greeted by IT staff with much enthusiasm.

And yet, transformational change is very much about people more than anything else.

Types of Organizational Change

There are three types of organizational change. [1]

Developmental changes improve what you're already doing, rather than creating something new. An example might be making improvements to an existing process.

Transitional change replaces "what is" with something completely new; it requires designing and implementing a "new state". An example here is establishing a process that does not currently exist in an organization.

Transformational change moves us to a new state as well, but in this case, we do not know what the new state will look like as we begin. Transformational change includes trial and error. The new state involves new mindsets and changes in culture, each of which will require changes in behavior.

ITSM, DevOps and IT Transformation

IT Service Management

IT service management (ITSM) refers to the entirety of activities – directed by policies, organized and structured in processes and supporting procedures – that are performed by an organization to plan, design, deliver, operate and control information technology (IT) services offered to customers.

ITSM is very much about changing mindsets and achieving a services orientation. However, changing a person's mindset is difficult and involves transformational change. In fact, the emergence of the DevOps movement is driven in part due to the reality that these shifts in assumptions, methods or notations are beginning to change traditional command-and-control leadership approaches into self-organizing styles of leadership [2] . These kinds of organizational changes reflect the need for 'agile' organizations that can keep pace with rapidly changing customer preferences, among other benefits.

DevOps

The DevOps movement is largely about these cultural shifts – increased collaboration, shared responsibility and the breaking down of silos. It builds on ITSM and focuses much more on the transformational change requirements that are needed to drive improvement: amplifying and accelerating feedback, and continuous learning.

IT Transformation

So, ITSM is largely focused on changing mindsets and achieving a services orientation, whereas DevOps attempts to directly address culture shifts. One (ITSM/ITIL) tends to favor more traditional process improvement approaches such as Six Sigma , and the other (DevOps) is more aligned with lean improvement techniques such as value stream mapping.

Despite these differences, the common ground of both is transformational change, and both agree on the importance of monitoring.

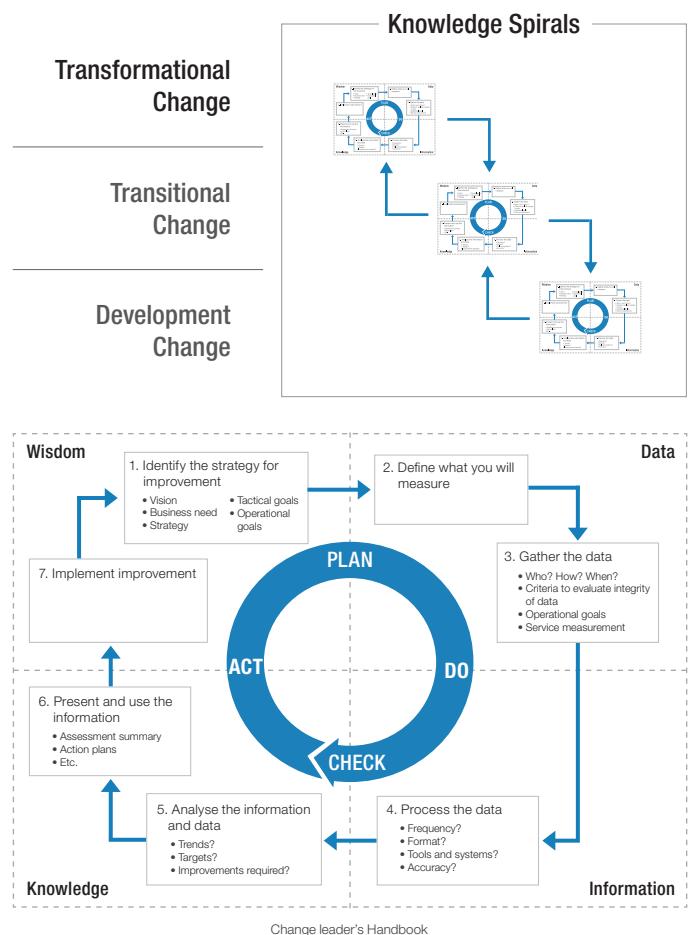## Visibility, Transparency and IT Transformation

Figure 1 - IT Transformation and Knowledge Spirals [3]

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[1] See: Linda Ackerman Anderson;Dean Anderson. The Change Leader's Roadmap: How to Navigate Your Organization's Transformation (J-B O-D (Organizational Development)) (Kindle Locations 450-451). Kindle Edition.

[2] See Stanely McChrystal, Team of Teams: News Rules of Engagement in a Complex World (Portfolio, May 2015).

[3] IT Infrastructure Library, Continual Service Improvement, pages 40-41

ITIL's Data-to-Information-to-Knowledge-to-Wisdom (DIKW) Cycle, Deming's Plan-Do-Check-Act and the 7-Step Improvement process are leveraged for all types of organizational change – developmental, transitional and transformational.

These cycles, as well as DevOps' accelerated feedback, collaboration and continuous learning all depend on linking these communication cycles up and down the organization; what ITIL refers to as knowledge spirals (see Figure 1).

And, monitoring plays a critical role in these communications.

Visibility vs. Transparency

Monitoring collects large amounts of raw data and places it in a specific context, such as a services view, a moment in time or sometimes both. These are the charts and graphs, the performance metrics and the dashboards that we see from many monitoring tools today. They provide *visibility*, i.e. raw information, to stakeholders.

This information must be analyzed, and increasingly at speeds far faster than humans can perform. When we analyze monitoring information (i.e., perform analytics), we create actionable *knowledge* which can automate remediation or other operational actions. It is the knowledge

and sharing of why we do what we do (the actions we take) that leads to *transparency*.

Transparency is a basis of organizational trust, and without it transformational change will break down. So, monitoring is a critical enabler of IT transformation (see Figure 2).

What is IT Monitoring?

Monitoring is a very broad-based activity and takes place at many different levels and from many different perspectives. From an organizational change perspective, monitoring the development of organizational capabilities is essential and can include monitoring skillsets and training, process capability, programs/projects and many other areas.

But when we refer to IT monitoring we typically are focused on IT services and their supporting applications and infrastructure. So, while there's a lot of people and process-monitoring taking place in IT transformation initiatives, in many ways transformation is driven by the information and knowledge coming out of our technology monitoring efforts. A basic example is a deviation in expected service levels that leads to corrective actions, which could include many different combinations of people, process and tooling improvements.

Technology Monitoring

Technology monitoring must "connect the dots" between the abstract concept of a service and the underlying components. It's also important to understand that monitoring must provide us with visibility and transparency of the interdependencies both *between* and *within* these components.

Today's Monitoring Reality

There are literally hundreds of IT monitoring tools available today, and these often focus on a technology stack, device or platform. In some cases, the monitoring environment has mirrored the IT organizational structure with tools organized around functional/technical domains, such as network, web, database and/or applications. The rapid emergence of new technologies and architectures, such as containers, microservices, and APIs further blur an already complex monitoring environment.

The result can be a highly-fragmented monitoring environment, resulting in the "Not My Problem" syndrome, as illustrated below (see Figure 3).
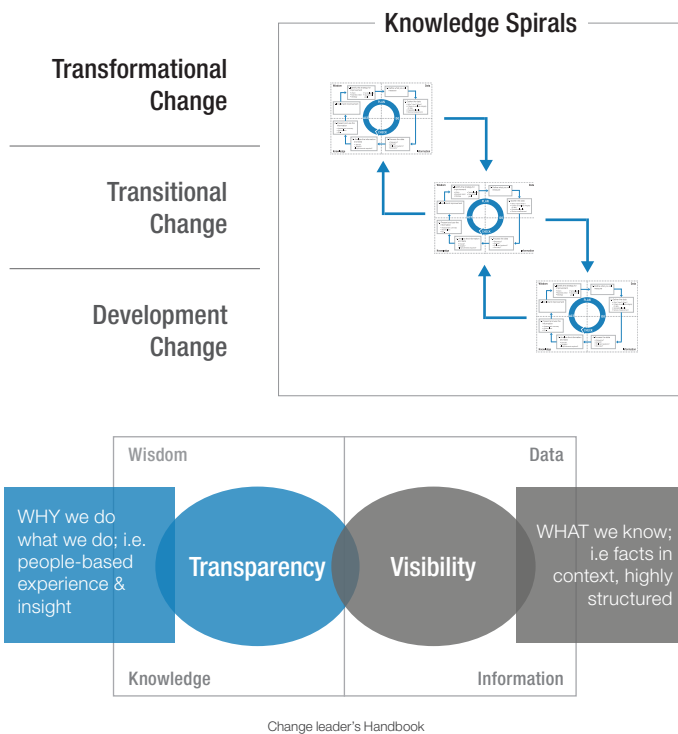

Figure 2 - Visibility, Transparency and IT Transformation [4]

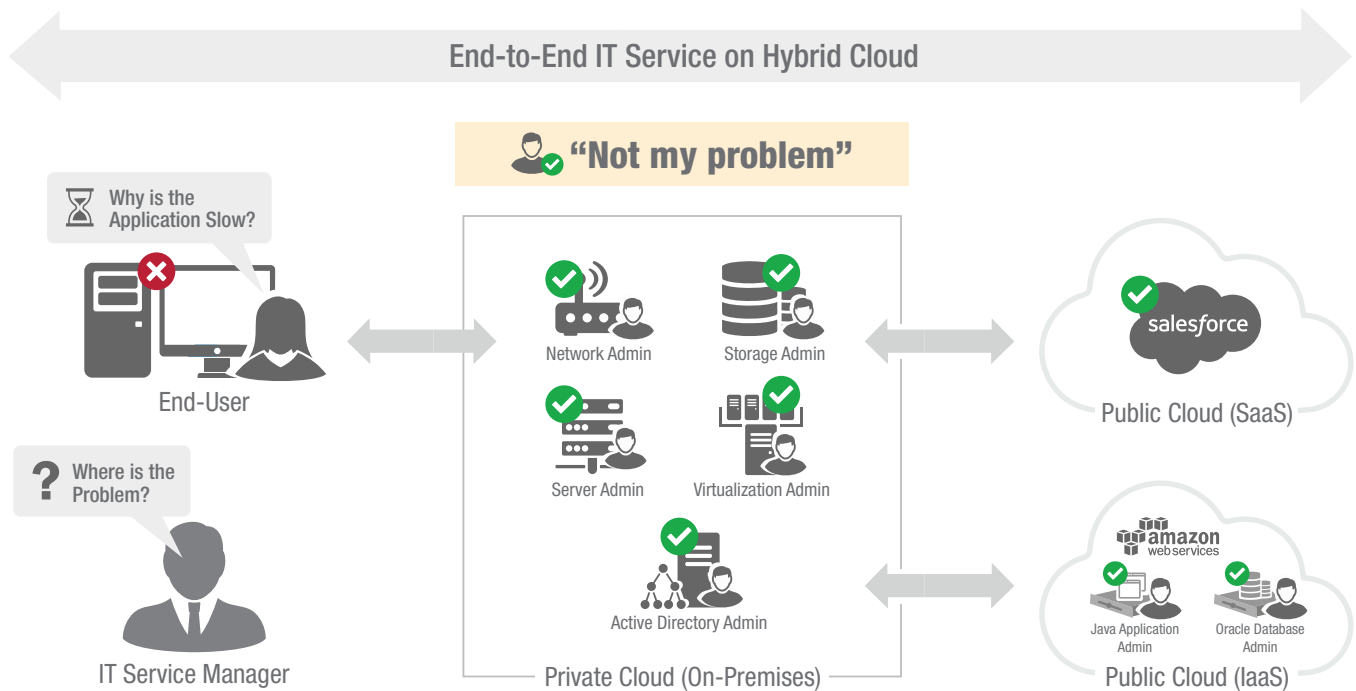[4] *IT Infrastructure Library, Continual Service Improvement, pages 40-41*

End-to-End IT Service on Hybrid Cloud

"Not my problem"

Why is the Application Slow?

End-User

Where is the Problem?

IT Service Manager

Network Admin   Storage Admin

Server Admin   Virtualization Admin

Active Directory Admin

Private Cloud (On-Premises)

salesforce

Public Cloud (SaaS)

amazon web services

Java Application Admin   Oracle Database Admin

Public Cloud (IaaS)

Figure 3 - The Not My Problem Syndrome

ITSM, DevOps and IT Monitoring

The ITIL guidance places monitoring in an operational context, with monitoring being very closely related to the Event Management process. But ITIL is quick to note that, "although performed by service operation functions, [monitoring/Event Management] provides a basis for setting strategy, designing and testing services and achieving meaningful improvement [5]."

DevOps also recognizes monitoring and measurement as a part of its conceptual framework, and builds on ITIL's guidance by seeking to "shift-left" monitoring and testing, in order to catch errors earlier and more often.

Like many technology domains today, the monitoring tool landscape will continue to converge. Products that seek to optimize for DevOps and applications will need to increasingly focus on operational integration and post-deployment feedback. Products that support infrastructure and operations will need to 'shift-left' and begin to take on more application-centric capabilities.

This convergence of applications and infrastructure is, not surprisingly, continuing what has been a long journey towards a services-oriented monitoring environment that combines all components of IT services end-to-end and cross the complete service lifecycle.

Leveraging IT Monitoring for Organizational Success

Any IT monitoring project must anticipate the people and process interfaces that will invariably emerge because of monitoring's broad organizational scope. This is particularly true with service-oriented monitoring, since IT services will almost always cross organizational boundaries. And further, this is precisely what many transformational change efforts require.

Know Your Starting Point

Knowing your starting point begins with your organizational landscape. In many cases, the monitoring environment will mirror your organization's existing communication structure. Recognizing these people-boundaries should also include some understanding of the current process capabilities of the organization:

- What level of ITSM process capability exists?

- Are there formal or informal DevOps initiatives underway?

- What level of organizational sponsorship exists?

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[5] *IT Infrastructure Library, Service Operations, page 122*

These and other similar questions are important before looking at your starting point from a technology monitoring perspective:

- Where are you along the cloud journey?

- Do you have an application portfolio?

- What does your current technology environment look like?

While the level of detail can get unwieldy, asking basic questions such as these can keep the analysis at a high level and begin to inform your decisions as you take the next series of steps to leverage IT monitoring. Further, they are closely related to questions one might ask as part of an IT transformation – each can effectively inform the other.

Agree on Service Measurement Priorities

Understanding the services provides you with a starting point and the context needed to clarify business impacts and dependencies. However, services will span different stakeholder groups, processes and lifecycle stages. In addition, services can be either customer-facing or supporting IT services.

So, before selecting service targets, some analysis of what your basic service measurement priorities are should be reviewed. Which stakeholders you include can have a significant influence on the scope of the monitoring analysis. For example:

- Technical domain owners may focus on specific technologies (i.e., database, network, etc.)

- Application owners will focus on applications (user experience, code diagnosis, etc.)

- Supporting IT service owners will focus on their platform (Citrix, SAP, etc.)

While each of these is important, an overarching view of the end game is critical. In most cases, the organization's greatest costs associated with monitoring come from making sense of events in customer-facing, end-to-end IT services. This services context also helps to align different levels of organizational change activities as new program and project activities are undertaken.

Focusing on a single technology/device or application may not maximize the effort from your monitoring investments. Selecting a supporting IT service and/or platform such as SAP or Citrix may be slightly better, but ideally this will include the intent to quickly incorporate one or more customer-facing IT services as part of the program.

Since all value originates from outside the enterprise, you'll eventually need to connect all improvement activities to the external customers of the business. Concepts like outside-in thinking and co-creation of value signify efforts to ensure that improvement activities remain focused on value to the customer.

So, to maximize your IT service monitoring investment you must ultimately incorporate a perspective from the external customers of the business.

Establish Initial Baselines

Establishing baselines is a fundamental best practice. Performance baselining will almost always provide you with some basic configuration reference data as well, since the activities associated with instrumenting the target IT service for monitoring should discover interdependencies between the underlying service components.

If you are planning a migration to the cloud, these performance baselines are even more important since you'll be relying on the cloud service provider's ability to assure at least some components of your end-to-end IT services. Getting current baselines of end-to-end service performance is an acknowledged best practice and migrating to the cloud without this information is not recommended.

The activities associated with establishing a true performance baseline of existing IT services is an important initial step in establishing visibility, transparency and organizational trust. This can spawn many types of organizational change:

> *The single most important thing to remember about any enterprise is that there are no results inside its walls. ... Results exist only on the outside.*
> **Peter Ferdinand Drucker**

From "wake-up calls" that lead to underline transformative change, to programs of transitional change affecting cross-sections of the organization, to simple underline developmental changes that are projects of incremental work.

A fundamental aspect of monitoring is that it is *continuous*; monitoring cycles mirror the improvement cycles that typical of today's organizational changes, i.e. ongoing. The reality often missed when it comes to monitoring and continuous improvement is that baselining never ends; your *initial* baseline may be the first but it should by no means be your last.

Validate Tool Analytics

When evaluating monitoring tools today, analytics are increasingly important. It is analytics that will accelerate your IT transformation by providing real transparency (knowledge) in addition to visibility (information). Analytics make sense of events across end-to-end IT services, and represent a major opportunity for improvement in most IT organizations.

Since the ability to "connect the dots" between service abstractions and the underlying components is a fundamental monitoring requirement, this suggests that the ability to monitor both applications and the underlying infrastructure is also fundamental.

Providers will leverage many different techniques including event correlation, analytics and artificial intelligence. It will be up to you to validate the claims associated with these approaches, and the best way is to conduct a pilot or proof-of-concept. But it is effective analytics that will most directly address critical monitoring and IT transformation elements that help reduce the costs associated with making sense of events. This, in turn, leads to increased organizational transparency and trust.

Conclusion

IT organizations should consider services-oriented monitoring as a key enabler of IT transformation. Establishing effective services-oriented monitoring mirrors the efforts involved in IT transformation. Best practices to leverage monitoring as part of an ITSM or DevOps initiative include establishing a well-defined starting point, service measurement priorities, performance baselines and effective analytics.

Through a carefully planned services-oriented monitoring program, customers can combine key technology requirements in concert with other organizational development activities as part of a coordinated, ongoing improvement road map.

For More Information

eG Innovations is a provider of performance management solutions. We pioneered unified monitoring in 2001, went on to develop end-to-end business service monitoring solutions, the industry's first virtualization-aware automated diagnostics, and more recently, code-level application performance correlation with the announcement of our fully converged application and infrastructure monitoring platform.

eG Enterprise takes measurements at every layer of every component across end-to-end IT services, learns the norms of all measurements and, through patented analytics, automatically isolates which layer of which component is the source of a performance issue.

Today we accomplish this across any deployment model—public, private or hybrid cloud—and from code to bare metal.
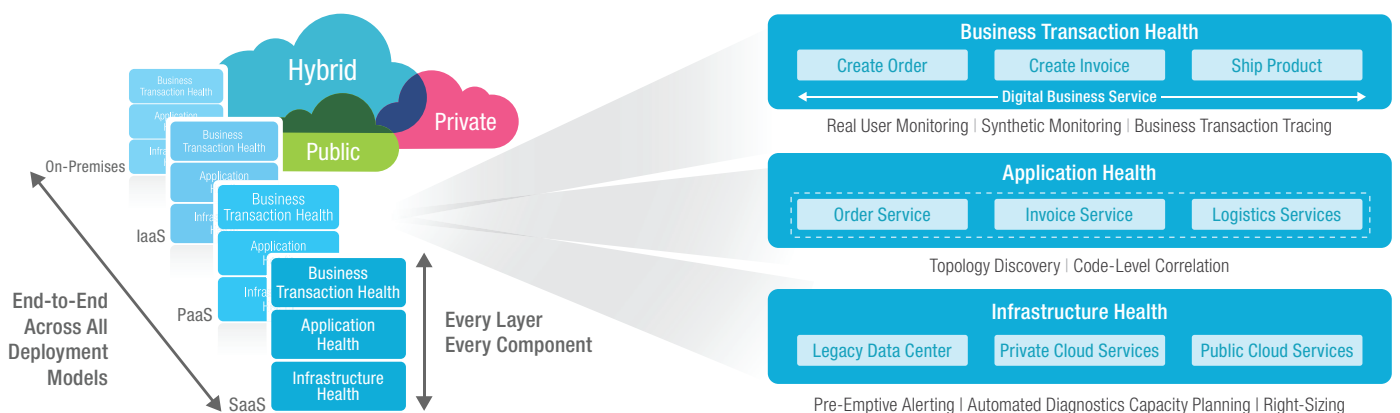

Figure 4 - How eG Enterprise Monitors IT Services End to End

Next Steps

For more information, please visit https://www.eginnovations.com/product/features,
or email us at info@eginnovations.com

LIVE DEMO

Request a personal walkthrough to learn first hand how eG Enterprise can help improve performance and operations in your business environment.

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 end-user experience and improve IT operations.

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.

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