

## **DEVELOPMENT OF MONITORING SYSTEMS FOR REAL-TIME SERVICES AND ITS BENEFITS FOR BUSINESS**

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### **ABSTRACT**

*Data availability and the need for updating are important considerations when designing product costing systems. This paper describes the development of a monitoring systems for real-time services and its benefits for business. The company wanted to be able to assess profitability of products on a more comprehensive basis than the contribution margins of products, which included merely the direct material costs.*

**Keywords:** *real-time services, data, business, ICT, monitoring systems, technology, network, software analyze.*

### **АННОТАЦИЯ**

*Доступность данных и необходимость обновления являются важными факторами при разработке систем калькуляции продукции. В этом документе описывается разработка системы мониторинга для сервисов в реальном времени и ее преимущества для бизнеса. Компания хотела иметь возможность оценивать прибыльность продуктов на более комплексной основе, чем маржинальная прибыль продуктов, которая включала только прямые материальные затраты.*

**Ключевые слова:** *сервисы реального времени, данные, бизнес, ИКТ, системы мониторинга, технология, сеть, программный анализ.*

### **INTRODUCTION**

Today, technology is evolving day by day. Technology can also be used to manage, control, test, and assign tasks. Digital technologies can be seen mainly in the areas of our economy, health, and government. Digital technologies will open the way for further development of these industries and will help to alleviate the hard work of people. We will get acquainted with the role of digital technologies in the digital economy, e-government and computing. Network security and performance can play a significant role in your company's overall success. That's why every business, especially those in e-commerce, must frequently monitor their networks to ensure everything is running smoothly. To get a clear picture of how your systems are running, you should have a solid understanding of what real-time network monitoring

is and how it can benefit your business. Real-time monitoring is the employment of applications and tools that track and record continuous snapshots of your network's overall performance. Organizations use real-time monitoring to track network activity, improve network security, and identify potential problems as soon as they arise. Every business, regardless of size, can benefit from monitoring their network in real time. Real-time (data) monitoring is the delivery of continuously updated information streaming at zero or low latency.

IT monitoring involves collecting data periodically throughout an organization's IT environment from on-premises hardware and virtualized environments to networking and security levels, into the application stack -- including those in the cloud and out to software UIs. From this data, IT staff analyze system performance, flag anomalies and resolve issues.

## **DISCUSSION AND RESULTS**

Real-time monitoring ups the ante by providing a continuous low-latency stream of relevant and current data from which administrators can immediately identify serious problems. Alerts can be more quickly routed to appropriate staff -- or even to automated systems -- for mitigation. By tracking real-time monitoring data over time, organizations can reveal and predict trends and performance.

How does real-time monitoring work? Real-time monitoring relays the active and ongoing status of an IT environment. It can be tuned to focus on particular IT assets and at desired granularity.

Types of real-time data include the following:

- CPU and memory utilization;
- application response time;
- service availability;
- network latency;
- web server requests; and
- transaction times.

Generally, real-time monitoring software displays relevant data on customizable dashboards. Administrators can choose to display expected data ranges and formats as numerical line graphs, bar graphs, pie charts or percentages. The displays of the data can be arranged according to priorities and administrator preferences. Benefits of real-time monitoring. Collecting real-time monitoring data helps IT managers immediately evaluate and react to current events in the IT environment. Moreover, organizations can log and track real-time data over time to identify trends and better

recognize abnormalities that fall outside set parameters of system and application behavior. This is known as *trend monitoring*.

**Reactive monitoring vs. proactive monitoring:** Reactive monitoring is a long-established troubleshooting method in IT organizations and data centers. The defining characteristic of this process is revealed by its name: It reacts to triggers that signal an event has occurred. By comparison, proactive monitoring applies monitoring data without requiring a trigger event. In this approach, a monitoring tool can predict problems -- such as a memory leak -- that, if unresolved, could crash an application or an entire server. AI and machine learning are increasingly applied to proactive monitoring to comb through data, track cyclical patterns and flag abnormal behaviors.

What are the benefits of real-time monitoring? Although it is simply a good business practice to monitor your network in real time, doing so also provides several advantages for small business owners.

**1. Network security.** Network security should be a top priority for any business. Monitoring your network in real time is a great way to support security compliance. Real-time monitoring can help you or your IT department identify and resolve security problems as soon as they arise. These issues can include unusual or suspicious traffic, unauthorized requests or devices, cyberthreats, or any other potentially harmful behavior on your network.

**2. Network performance.** Your network performance can be directly tied to the success of your business. For example, if you run an e-commerce business, you'll want to optimize your servers to avoid issues like downtime, bandwidth overload and long loading times. Monitoring your network in real time can reveal actionable insights about glitches and performance inefficiencies that need to be addressed.

Anthony Petecca, director of IT and security at StaffGlass, listed some of the most common network performance elements that you can monitor, and why they are important.

**Bandwidth usage:** If you are sending or receiving more data than you planned for, your network pipe could get overloaded, which can impact overall performance.

**Latency:** This is the time between a request and response of data. Latency is more important in some situations than others; for example, it's very relevant when you're playing a real-time game. Network availability/uptime: Knowing the actual uptime on your network allows you to confidently advertise your service-level agreement.

**Speed:** The speed of your network will vary at any given point. Visibility into the speed you are receiving versus the expected speed is important to maintaining good network performance.

"Having real-time monitoring allows you to track performance over time to finely tune your network for ideal performance levels," Petecca told business.com. "With enough time passed, it also allows you to prepare for anticipated network spikes (e.g., Cyber Monday shopping)."

**3. Incident response time.** "Not only do business leaders get to know the status of their network performance and security at all times, but when an incident happens, the real-time alerting allows for faster incident response," said Pieter VanIperen, founder and managing partner of PWV Consultants.

It is important for businesses to resolve incidents as soon as they arise, however big or small they appear to be. For example, it may seem obvious to resolve a cyberattack or data breach immediately, but even something as seemingly inconsequential as a slow-loading website or an abundance of 404 webpages can severely impact your business. Monitoring your network in real time can help you catch these incidents as soon as they occur and respond immediately. "Faster incident response means faster mitigation, which means less loss to the company".

**4. Employee productivity.** Monitoring your network can increase employee productivity. For example, using real-time monitoring to optimize your network performance can enable your team to send company emails, work on projects and collaborate with colleagues more efficiently. You can also use real-time monitoring to track employee data transfer and protect any sensitive information they may be working with. Additionally, some companies turn to employee monitoring software to monitor their employees specifically and track productivity in real time.

**5. Cost savings.** Up-to-date knowledge on how your network is being used can ultimately save you money. Instead of overspending on advanced software or unnecessary site speeds, you can gain a bird's-eye view of the exact technology and support you need. An optimized network can also help you make money, primarily if you work in e-commerce.

How can companies use real-time network monitoring? You can use real-time monitoring to increase your business's data security, network performance, employee productivity, customer satisfaction and reputation. There is a wide variety of monitoring applications, software, and services available, so the specific tools you use (and the way you use them) will depend on your business needs. "At the very minimum, I recommend that companies at least utilize real-time networking to

monitor speeds and latency of the network". "Having the knowledge of a network slowdown before you see degradation within your company's performance can be the difference of tens, hundreds, thousands or even millions of dollars." Researcher said that real-time monitoring can help companies identify what is "normal" for their business and set alerts around those metrics.

"Ensuring that alerts are set around anything that is out of the business normal is key," he said. "When performance changes or there is a security alert, the system can notify you so that fixes can be implemented. This is why it is key to know what is normal for the business – without knowing what is normal, business leaders have no idea how to set alerts." How to choose tools and resources for real-time monitoring. There are several monitoring applications on the market, which range in features, technical expertise and price. You should choose an affordable platform that is easy to use but advanced enough to support your infrastructure and monitoring needs.

We offer the following advice for businesses searching for the right monitoring tools:

Compare and vet all companies. Don't just look at cost; look at what you're getting for that cost. Make sure it's what your business needs and that the company you choose is reputable. If possible, see if your cloud provider offers this service. All businesses should be using cloud services anyway, and your cloud provider may know what is normal for your business better than you do. Like any technology, real-time monitoring is not foolproof or perfect. It is always best to use several tools to monitor your business and set multiple alert levels for different activities. Finding the right tools may seem daunting, but it is imperative for every business to implement some form of network monitoring as soon as possible. If you are new to network monitoring, it's OK to start small and expand later.

## **CONCLUSION**

Even having simple monitoring in place for something like speed is going to save you time and money when growing or troubleshooting issues. I recommend choosing a solution that is easy to implement and use. If you need more complex tools later on, you can upgrade. There is a tool to fit every scenario.

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