



PEGA in the Era of 6G Exploring the Future of Connected Systems and Automation

Tejesh Reddy Singasani

USA

s.tejeshreddy@gmail.com 0009-0002-6074-5584

ABSTRACT

6G technology will bring new challenges and opportunities for automation systems. Specifically, merging the capabilities of PEGA with 6G may transform network-connected systems beyond recognition -- to never-before-seen heights of automation. The paper discusses the possible synergies of PEGA and 6G and how these can transform workflows, decision-making and networked environments. With ultra-low latency, massive connectivity and massive data speed of the next generation systems that would enable real time automation which is not possible with earlier technologies. We will also delve into the growing obstacles, from safety issues to adaptive algorithms in a more complicated digital environment.

Keywords: 6G, PEGA, automation, connected systems, ultra-low latency, workflow management

INTRODUCTION

As 6G technologies get introduced, the possibilities for disruptive innovation can only go higher with automation platforms like PEGA that are right at the cross-section with connected systems. Low-latency communication over 5G; wide connectivity of more devices in 6G nearly zero-latency communication and HIGHER DATA SPEED than ever influenced by the notion that we should be able to experience better networking everywhere, thus spending time there. Unlocking the realm of automation technologies for industries that rely on instantaneous processes and decisions With PEGA's experience in workflow management and decision automation, it is perfectly qualified to grow alongside 6G and operate with all these new opportunities.

This paper explores the nexus of 6G and PEGA to elucidate what benefits can be derived by each from each other. Takeaways The Basics PEGA 6G And Its Promises After that, we will explore topics in which PEGA can be very beneficial with the 6G like IoT (Internet of Things), Edge Computing and Real-time Decision Making. In what follows, we will highlight some of the problems associated with this evolution, including issues in security or infrastructure and algorithmic complexity.

PEGA AND ITS ROLE IN AUTOMATION

PEGA is a very famous company in the field of business process management (BPM) and customer relationship management (CRM). Its strong points mainly revolve around workflow automation and managing complex decision making & various manual intensive processes. PEGA has emerged as a key BPM tool in the market due to its versatility across industries such as healthcare, telecommunication and financial services.

At the very heart of it, PEGA is model driven architecture which means that development and changes in applications are faster. Rather than constructing entirely new features, businesses can utilize the visual tools from PEGA to set up workflows and create decision trees in order to automate them, thereby getting them done faster. It is especially helpful in environments where operations change regularly or where high levels of personalization are required.

But the current network infrastructure is limiting PEGA's potential, especially in terms of true real-time decision-making at scale. PEGA a rules-based engine with the capability of calculation. However, it relies on the network to bring them data and make decisions in milliseconds. This is where 6G could really shine.

6G: A LEAP BEYOND 5G

Around 2030, we may see the launch of the sixth-generation wireless technology 6G. From achieving the capabilities of enhanced mobile broadband, ultra-reliable low-latency communication (URLLC), and massive machine-type communication (mMTC) with 5G to further enhance the limits by 6G.

Terahertz frequencies:

This will provide super high data speeds this the real time data transmission and processing can happen in almost no time.

Massive connectivity:

6G will be able to support billions of connected devices, leading to a huge internet of things (IoT) sensor ecosystem.

Sub-millisecond latency:

This will unlock brand new automation and decision-making opportunities requiring real-time response.

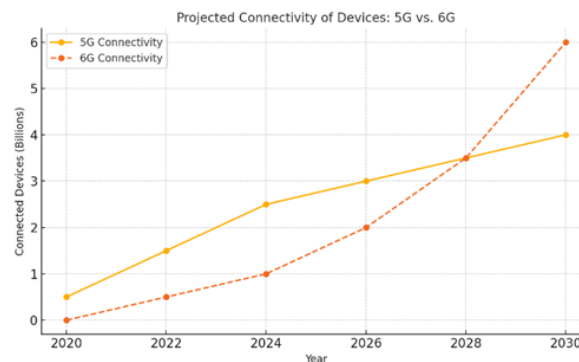


Figure 1: how 6G offers real-time capabilities by reducing latency compared to 5G.

Enhanced edge computing:

Faster and more effective edge computing will become dominant as the bulk of data processing facilities near the source.

AI and machine learning integration:

The AI enhancement of the 6G infrastructure, in turn, means the automation systems like PEGA can find more intelligent and self-optimizing networks

These progressions paved the way for more sophisticated systems like PEGA to learn, automate dozens if not hundreds of different tasks: make real-time decisions and manage thousands, millions or even billions of interconnected devices and processes useful in a variety of industries.

SYNERGIES BETWEEN PEGA AND 6G

6G technologies pave countless roads the PEGA so it can cater for all those future automation systems.

Real-Time Workflow Automation

PEGA could also use the sub-millisecond latency of 6G networks to automate workloads in real-time. For finance industry where trading decisions must be made within microseconds, this means with 6G PEGA will allow these transactions to be processed with virtually zero delay. Likewise, in healthcare we may soon see the dream of real-time patient monitoring and automatic diagnosis brought to life where PEGA could provide logic as data comes streaming in from connected devices.

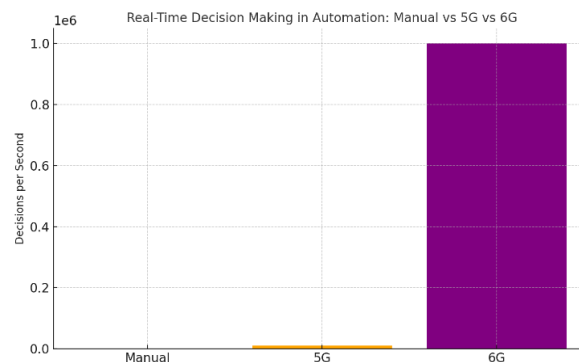


Figure 2: Improvement in automation when transitioning from manual processes to 5G and eventually to 6G.

Internet of Things (IoT) and Device Management

Massive connectivity: It refers to 6G's ability to connect and handle in the order of billions IoT devices which require real-time management. Whether PEGA is used to automate a smart factory by way of sensors or in a hospital with medical devices, business outcomes will improve greatly. 6G's hyper data speeds and low latency meant that PEGA could use its rule engine to parse the data streaming in from these devices, process this information in real-time, and take appropriate actions on decisions made right away.

Enhanced Edge Computing

Data has to travel from the edge of the network, all the way to a central cloud in traditional systems for processing. This leads to drastically reduced latency and increased efficiency, as portions of computational processing can be completed on the edge itself with 6G. This means PEGA could support its decision-making functions on the edge, which would also extend real-time automation close to where data is born. When decisions need to be made quickly such as in the real-time world of manufacturing and autonomous driving it would have some benefit.

AI Integration and Machine Learning

PEGA could employ Machine Learning Algorithms to boost its decision-making abilities by having AI integrated into 6G Networks. Meaning more instant mature prediction and complex workflow handling. In a customer service scenario, AI could enable PEGA to predict behavior at the individual level in real-time, and then automate responsive actions all of which delivers hyper-personalization and efficiency.

CHALLENGES AND CONSIDERATIONS

The benefits that may accrue by combining PEGA and 6G are obvious, but several hurdles remain as well.

Security

Just as the case with 6G is any future technology that returns, it means we need to think about new security risks. With so many connected devices, there are more opportunities for attackers to steal data. The fact that PEGA often manages workflows around sensitive data (financial transactions, personal health information) also means that security in a 6G world is an essential part of any vision for the future. More sophisticated security protocols are necessary to stop threats such as data breaches and cyber-attacks.

Infrastructure Requirements

6G will require a massive and expensive infrastructure to support it. Enterprises will need to upgrade their current networks, hardware, and software systems in order for PEGA to fully tap into 6G. For most companies, certainly the SMEs, this is a sizeable investment.

Algorithm Complexity

As even more connected devices and increasingly complex workflow are further facilitated by 6G, the algorithms that support PEGA's decision machines will have to adjust its methods accordingly. These kinds of things would require extreme core engine level updates for PEGA to be able to accommodate the extra data and decisions being made.

Regulatory and Privacy Concerns

Privacy, as more data can be processed and stored in real-time perhaps even become a privacy issue. This includes next-level requirements for governments, and governing bodies who will need to craft policy to govern the new possibilities that 6G enables (especially sectors dealing in sensitive data). PEGA automation systems must be designed in compliance with these regulations and should always consider data privacy.

CONCLUSION

The advent of 6G tech is another revolution in connectivity and automation. This provides PEGA a door to improve its workflow automation and decisioning capabilities better. Through faster data speeds, ultra-low latency, and improved connectivity, 6G will fuel the automation of even more high-level mission-critical work in real-time, supporting billions of connected devices and delivering incredibly personalized user experiences that go far beyond the capabilities and imagination of today.

But, like any nascent technology its pathway will not be easy. However, a number of matters such as security, infrastructure, algorithm complexity and privacy need to be managed in order to allow PEGA and 6G to maximize their capabilities. PEGA, however, is well-poised to be a leader in a new generation of connected systems that are promising for the future of automation.

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