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The Honorable Senator Dan Laughlin
Chairman, Senate Republican Policy Committee
Pennsylvania General Assembly

Dear Chairman Laughlin and Committee Members:

Broadcom appreciates the opportunity to offer written testimony for this hearing on Pennsylvania as an Innovation Leader. We commend the Committee on its focus on this topic in this pivotal moment for enabling and capitalizing on innovation in the Commonwealth.

As a global infrastructure technology leader, with roots based in the rich technical heritage of AT&T/Bell Labs, Lucent and Hewlett-Packard/Agilent, Broadcom focuses on technologies that connect our world. We serve customers in the data center, networking, software, broadband, wireless, storage, and industrial markets, at all levels of US government, including across a wide range of Pennsylvania state and local government agencies.

Broadcom has a significant presence in the Commonwealth, with offices in Allentown, Breinigsville, Lancaster, and Pittsburgh. With more than 500 employees in the Commonwealth, Broadcom's operations focus on semiconductor design and manufacturing, as well as infrastructure software development.

Roughly half of our Pennsylvania employees work in Breinigsville, which is part of Broadcom's Optical Systems Division (OSD) and responsible for developing and manufacturing devices used in optical communications. These advanced products, including leading-edge heterogeneous integration packaging, are core technologies that enable high-speed broadband communication networks and advanced data centers – technologies that are necessary for leading-edge products, such as large-scale Generative Artificial Intelligence (GenAI) and large language model (LLM) clusters.

Given this expertise in semiconductors and in infrastructure software, we bring a unique perspective to the challenges and opportunities presented by Artificial Intelligence (AI). We wish to share this expertise as the Committee seeks to foster a policy environment that supports innovation and business growth.

GenAI, especially in the form of LLMs, is at the forefront of technological innovation. Its potential is enormous, but implementing LLMs brings about unique challenges, notably in ensuring the privacy, security, and control of highly sensitive data used in or created through LLMs. Private AI, a term of art to describe a non-proprietary platform and technical architecture, offers a strategic solution for government and other critical industries, such as financial services, healthcare, energy, and telecom, that depend on highly sensitive data when implementing GenAI. By allowing for complete control over sensitive data, private AI fosters trust and transparency, ensuring that sensitive information and intellectual property are securely protected.

Private AI aims to balance business and operational gains from GenAI with the practical privacy and compliance needs of the organization. Private AI can be deployed in conjunction with existing technologies in on-premises data centers, virtual private clouds, hybrid clouds, public clouds, and

edge sites. In contrast, public AI, sometimes referred to as commercial AI, is a publicly available AI algorithm that is trained on publicly available data from across the internet, such as text articles, images, and videos. Often this data is then retained and used by the public AI entity to train the LLM for future public consumption.

There are significant privacy and business operational risks that can result from the use of public AI, including data and intellectual property leakage, security, model accuracy, "hallucination" (from the use of biased, inaccurate, and/or unrepresentative data), data privacy, and lack of transparency in result outputs. Public AI models are highly complex and costly deployments that require more accelerators like graphics processing units (GPUs) and require libraries from varied sources to develop. Because LLM testing and execution of data queries necessitate hardware acceleration, management of enormous data sets, and place significant infrastructure demands, there can also be performance issues.

With private AI, an organization maintains full control of its data, and its data is not used to train, tune, or augment any commercial or open-source software models without the organization's consent. The organization can leverage other AI models for a shared data set as its business needs require. Private AI allows for access controls to govern access and changes to AI models, associated training data, and applications. Audit logs and associated controls are also essential to ensure that governance policies are satisfied. Further, as organizations seek to access compute capacity and trained AI models which reside adjacent to where data is created, processed, and/or consumed, the highly distributed nature of private AI can help accelerate innovation in edge environments.

As AI technologies see increasing adoption in important societal applications, particularly by governments, it is critical to develop and deploy these techniques responsibly with a clear set of guiding ethical principles, particularly with data privacy in mind. The GenAI market is poised to grow from a market size of just $40 billion in 2022 to $1.3 trillion by 2032 according to a report by Bloomberg Intelligence (BI)[1]. As GenAI uses become more readily available in government and industries across the Commonwealth, it is critical to consider how the underlying AI infrastructure can enable organizations to exercise choice and avoid vendor lock-in, deliver unified management and operational functionality, and lower compute costs while increasing efficiency.

Broadcom appreciates the Senate Republican Policy Committee's focus in this hearing and its ongoing efforts to ensure a policy environment that supports innovation and business growth. Broadcom welcomes the opportunity to continue the conversation around this important issue with the Committee and your colleagues. Thank you for the opportunity to share our perspective as a global infrastructure technology leader with deep roots in Pennsylvania.

Sincerely,

Robert P Hoffman

Robert Hoffman
Head of Government Affairs
Broadcom Inc.

[1] https://www.bloomberg.com/company/press/generative-ai-to-become-a-1-3-trillion-market-by-2032-research-finds/