



IPv6-first European Internet foundational Stack strengthening the Digital Single Market

Fostering a sovereign, competitive and secure European Internet stack embedding an IPv6-first open-standard strategy and incentives within the Tech Sovereignty Package

POLICY PROPOSAL

Embed IPv6-first open standards within the Tech Sovereignty Package as a foundational measure for a competitive, secure and interoperable Digital Single Market.

Dear Sir or Madam,

Europe's competitiveness and digital sovereignty increasingly depend on the architectural coherence of its connectivity infrastructure. The 2024 Letta and Draghi analyses highlighted how regulatory fragmentation and uneven implementation weaken the Union's ability to operate as a true Single Market. The Tech Sovereignty Package presents a generational opportunity to address this fragmentation decisively and to ensure that Europe's next wave of infrastructure investment delivers long-term strategic value.

This submission proposes that IPv6 be explicitly integrated into the Tech Sovereignty Package framework as a foundational and harmonising measure. IPv6 is not a technical preference or incremental upgrade. It is the only globally standardised and scalable Internet open and royalty-free architecture capable of supporting Europe's long-term digital objectives, including Advanced Connectivity, Sovereign Cloud/Edge, Internet of Things, AI-infrastructures, high-performance computing and cross-border digital public services. Several

relevant Corporations, critical infrastructures and public institutions from various economy sectors (Financial, Retail, Energy, etc.) out of Europe are already leading this race creating an agenda, roadmap and requirements Europe cannot miss and thus losing technology autonomy, sovereignty and innovation leadership.

While global IPv6 adoption now exceeds half of end users, deployment across the Union member states remains inconsistent. Connectivity and public-sector procurement frequently proceed without IPv6-by-default requirements. As a result, Member States advance at different speeds, enterprises encounter inconsistent interoperability environments, and cross-border service provision increasingly depends on large-scale carrier-grade NAT and transitional mechanisms. This perpetuates complexity, higher dependency on non-EU vendors, lack of innovation and increases operational cost and limits resilience and transparency.

True Single Market functionality requires harmonisation at the most successful open-standard and opensource communication stack, the so called TCP/IP or Internet layer. Without a common Internet addressing base layer and innovative protocols foundation, fragmentation and dependency risks will be reproduced within European next-generation infrastructures for AI, Cloud, IoT & HPC critical infrastructures.

Continued structural reliance on IPv4 presents four strategic concerns:

Market fragmentation: Uneven IPv6 adoption limits seamless cross-border enterprise services and roaming efficiency.

Rising technical debt: Extensive NAT architectures increase cost, latency and operational complexity.

Reduced cybersecurity transparency: Address translation at scale weakens end-to-end traceability and auditability.

Limited Innovation: Internet standardization bodies ISOC and IETF are delivering key innovations such as programmable networks or mesh networks only for the new Internet stack, IPv6. Remaining in IPv4 means losing those innovations.

Strategic dependency: IPv4 scarcity reinforces reliance on secondary address markets outside direct EU policy influence.

The transition to new infrastructures, represents a once-in-a-generation infrastructure redesign. If IPv6 capability is not embedded during this cycle, Europe risks locking fragmentation into key new infrastructures will remain in operation for decades.

Embedding IPv6 within the Tech Sovereignty Package would align directly with the Digital Decade objectives: strengthening technological sovereignty, enabling AI and HPC infrastructure, reinforcing cybersecurity resilience and deepening the Digital Single Market. IPv6 supports simplified network architectures, scalable IoT deployments, efficient satellite integration and cloud-edge interoperability. It is already mature, widely supported in modern equipment and operating systems, and operationally proven in large-scale networks globally.

The attached document proposes proportionate and feasible suggested measures to achieve structured deployment without imposing disproportionate regulatory burden. These include:

Create incentives, open calls and public-private instruments for European Commission partnerships with EU associations and organizations to establish groups of experts, info days and pragmatic actions in order to work together with member states, corporations, public organizations and critical infrastructures to:

Fostering IPv6-by-default capability for infrastructures, services and new technology paradigms. Promoting IPv6 for cross-border operation to ensure architectural consistency.

Supporting digital skills and competence clusters to strengthen operational readiness across Member States

Integrating IPv6 baseline requirements into EU-funded infrastructures & Research. Aligning all networks and satellite deployment incentives with IPv6 addressing as the default architecture. Involve other key EU bodies, such as European Central Bank.

Developing monitoring mechanisms and annual readiness reporting to ensure measurable progress.

These measures preserve technological neutrality. They do not mandate specific vendors or technical topologies; rather, they establish a uniform, globally recognised open-standard framework consistent with long-term Internet architecture.

The operational annex accompanying this submission demonstrates practical feasibility, including IPv6-first and IPv6-only policies already adopted by other relevant regions and countries, training and educational programs and actions to ensure long-term and competitive innovation.

The Tech Sovereignty Package provides a timely and appropriate regulatory entry point to address architectural fragmentation at its root. By explicitly recognising IPv6 and the new IPv6-based innovative protocols defined by IETF as then foundational open-standard for infrastructures and platforms, the Commission can ensure that Europe's substantial investment in communications and emerging IT sectors results in a genuinely integrated, future-proof Single Market.

We respectfully submit this proposal for consideration and would welcome further dialogue to support its practical implementation within the Tech Sovereignty Package framework or any other instrument where the goals and needs defined in this document might be addressed.

This document has been prepared with the sole purpose of contributing to the objectives of European technological sovereignty, digital resilience and long-term competitiveness.

This contribution is guided by core European values: openness, interoperability, technological independence, diversity, innovation, security and cross-border cooperation. Its objective is to support policymakers in building a resilient, future-proof and globally competitive digital ecosystem based on open Internet standards.

Participating organisations

The following organisations have participated in its preparation (listed in alphabetical order):

IPv6 Council Belgium,

IPv6 Task Force France

IPv6 Council Germany

IPv6 Council Ireland

IPv6 Council Spain