



PII – Pan-European laboratory Infrastructure Implementation

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The Challenge

1. FI & NWGN research URGENT
2. FI & NWGN needs experimenting
 - Complexity of real-world experimental evaluation
 - Simulation often too simplistic
 - Emulation lacks diversity and scale
 - Needed more partners
 - Faster time-to-market needed - with better **QUALITY**
3. Testbed dilemma
 - Production testbeds: real users, but little innovation
 - Research testbeds: innovation, but no real users



The Solution

Testbed Federation



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The Objective

No clean-slate approach, rather:

- To federate the existing distributed testbeds (industry and academia) across Europe
- To re-use existing infrastructure rather than re-build

But:

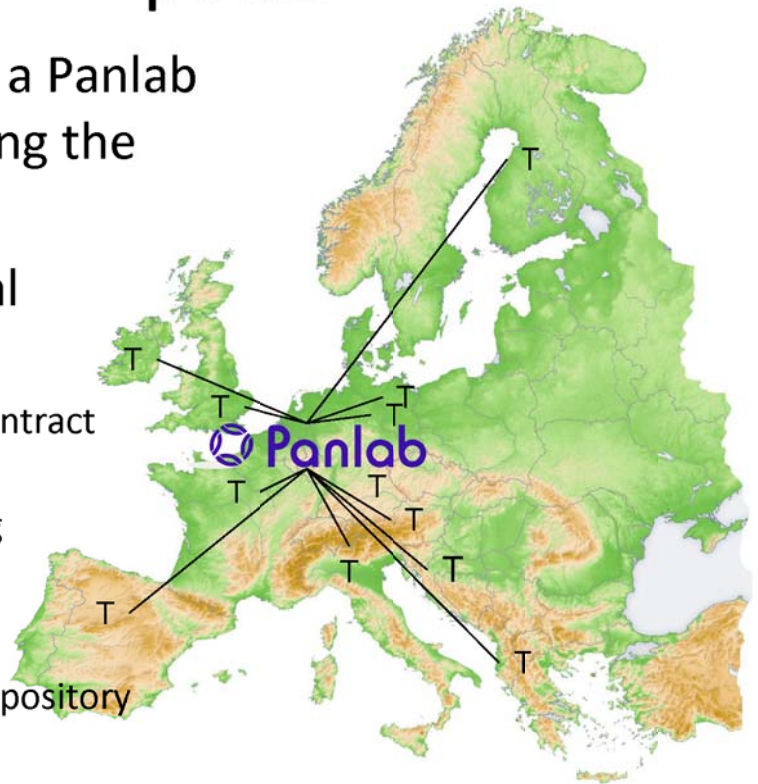
- Highly heterogeneous landscape – scope: Technology agnostic!!
- Different administrative domains
- Aiming at automated setup and configuration

➔ **Nightmare from management point of view**

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The Proposal

- Proposition for creating a Panlab organisation for operating the testbed federation
 - Panlab shall offer central services such as
 - Legal support, documents, contract templates
 - Administrative and marketing
 - VPN services
 - Testbed search engine
 - Testbed and testing results repository
 - Testbed composition engine
- > VPT = Virtual Private Testbed



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Panlab Principles

Openness

└ for all European (and eventually worldwide) testbeds

Excellence

└ Technological and geographical diversity

Efficient management

└ Capability to control complex testing processes

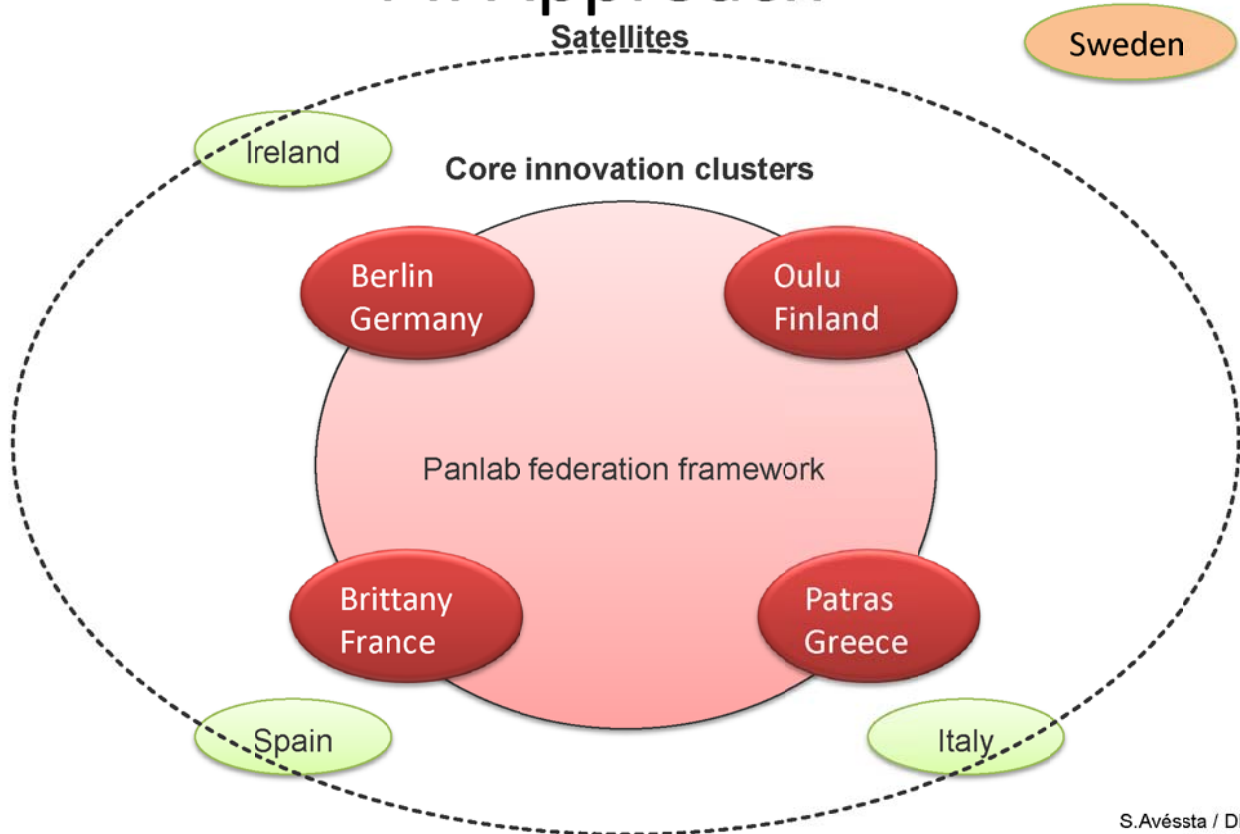
Simple governance

└ Including clear rules for relationships between testbed providers and customers



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PII Approach



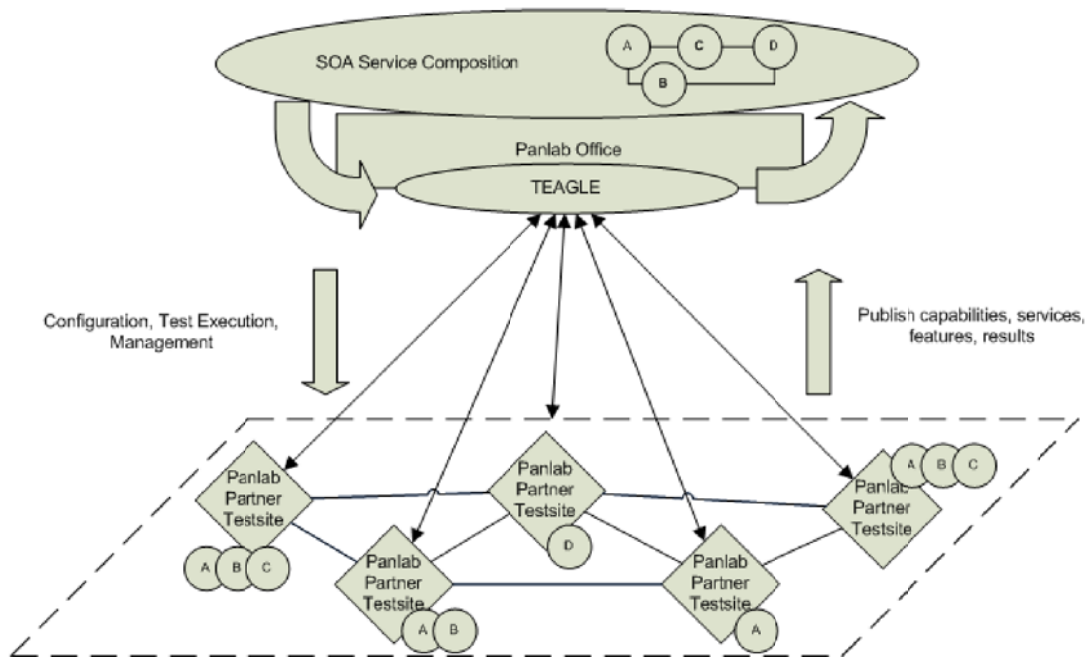
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PII Technical Ambitions

1. Common abstract control framework, which enables the interconnection of diverse testbeds
2. Mechanisms and tools to describe, store, locate and orchestrate testing services
 - Means to *automatically* provide *composite testbeds* across multiple administrative domains
3. Mechanisms to combine and accommodate future clean-slate approaches and provide testing services in a network-agnostic manner
4. Establish trust across the federation by means of quality assurance processes and tools
5. Integrate the concept of User Driven Innovation.
6. Execute a techno-socio-economic study to assess the long-term sustainability of the federation model.

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PII Architecture



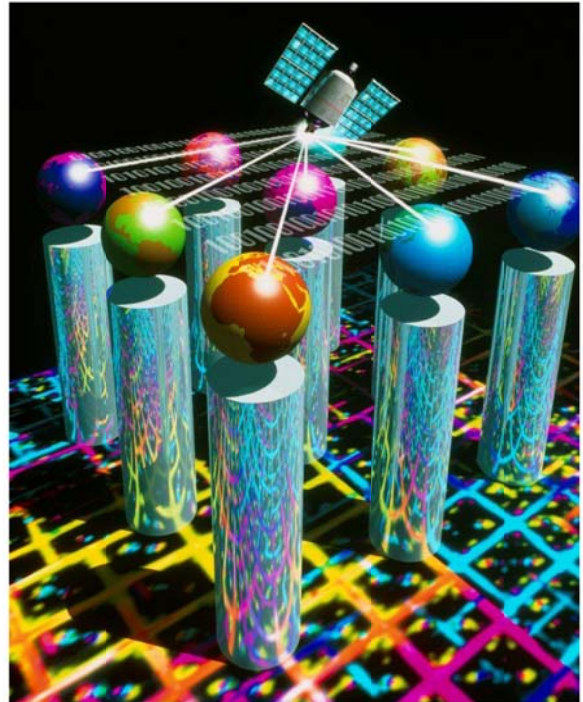
Technical Infrastructure Requirements

- Testbed / service search
- Interconnection
- Addressing
- Description and Classification
- Repository
- Service Composition



Teagle

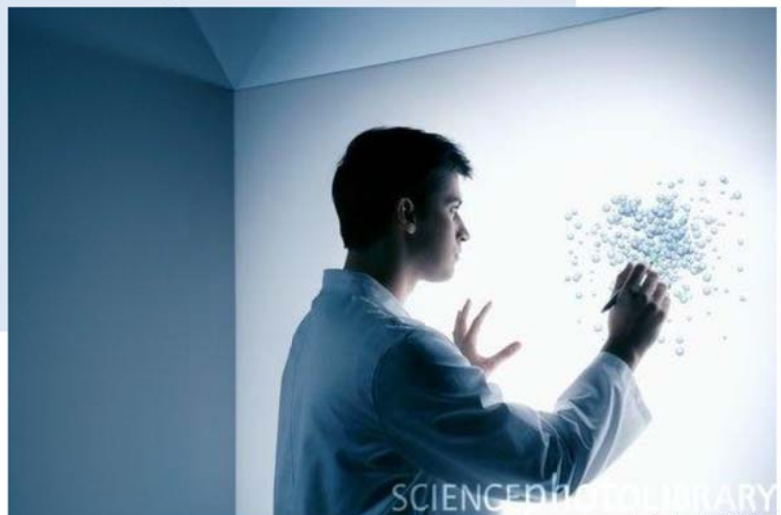
- Interface to the customer
- The testbed search engine
 - Provides search tool based on the service descriptions held in the repository
- Service composition engine of different domains
- Availability checks, booking, scheduling, etc.
- The automation engine



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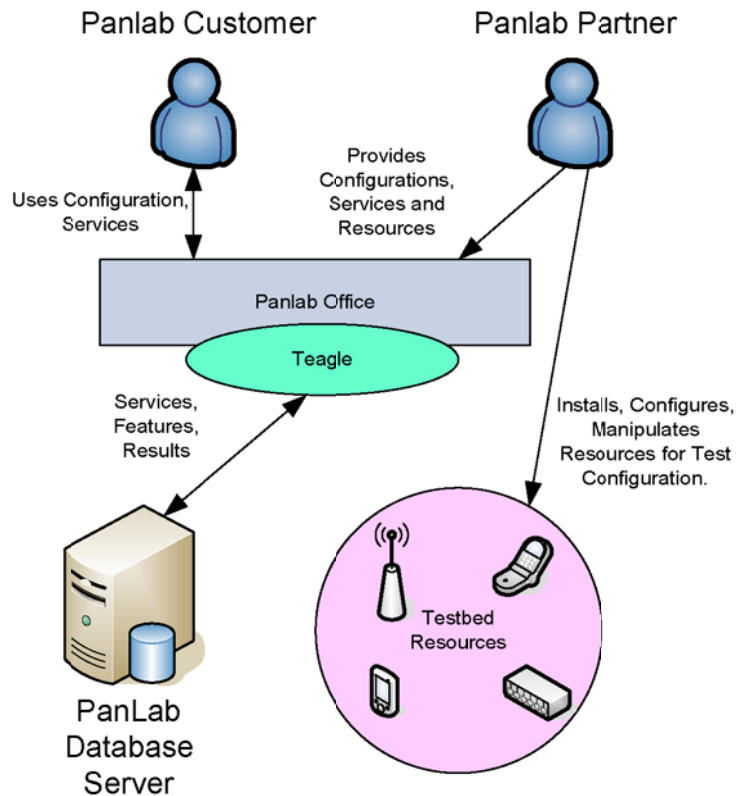
Repository and Service Description

- Holds the descriptions of testbeds and services
- Semantic descriptions are required for services to enable meaningful composition
- Classification scheme is needed
- Static classification vs. tagging and wisdom crowds
- Also used as a result repository

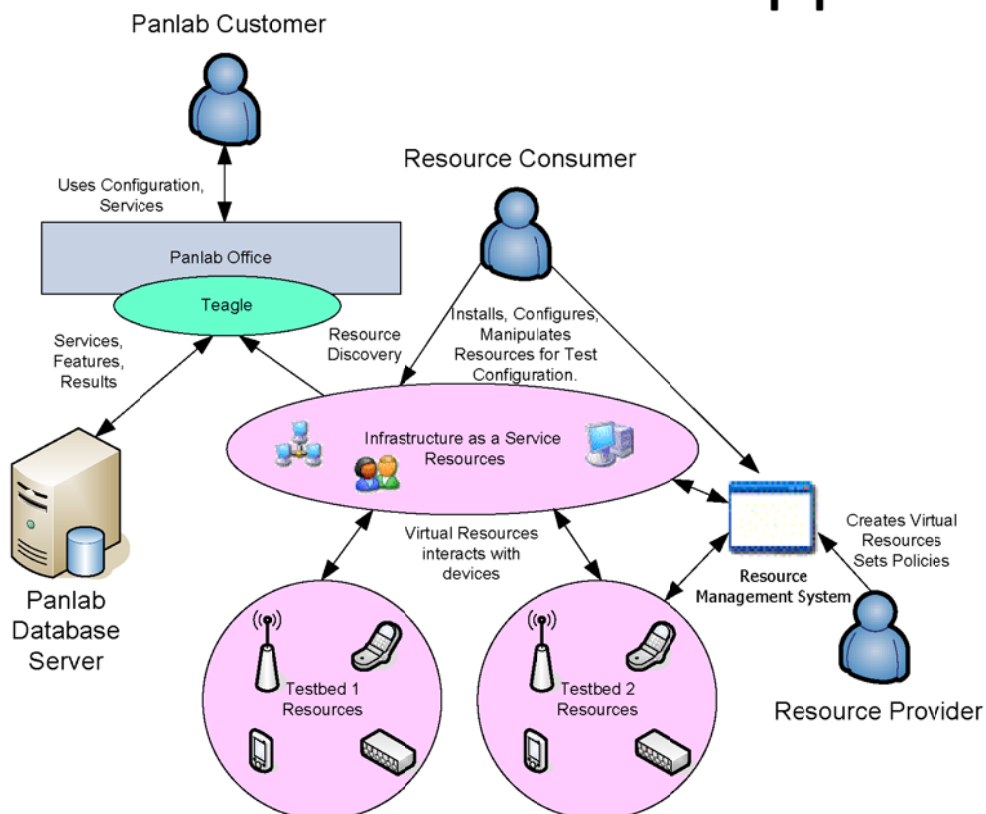


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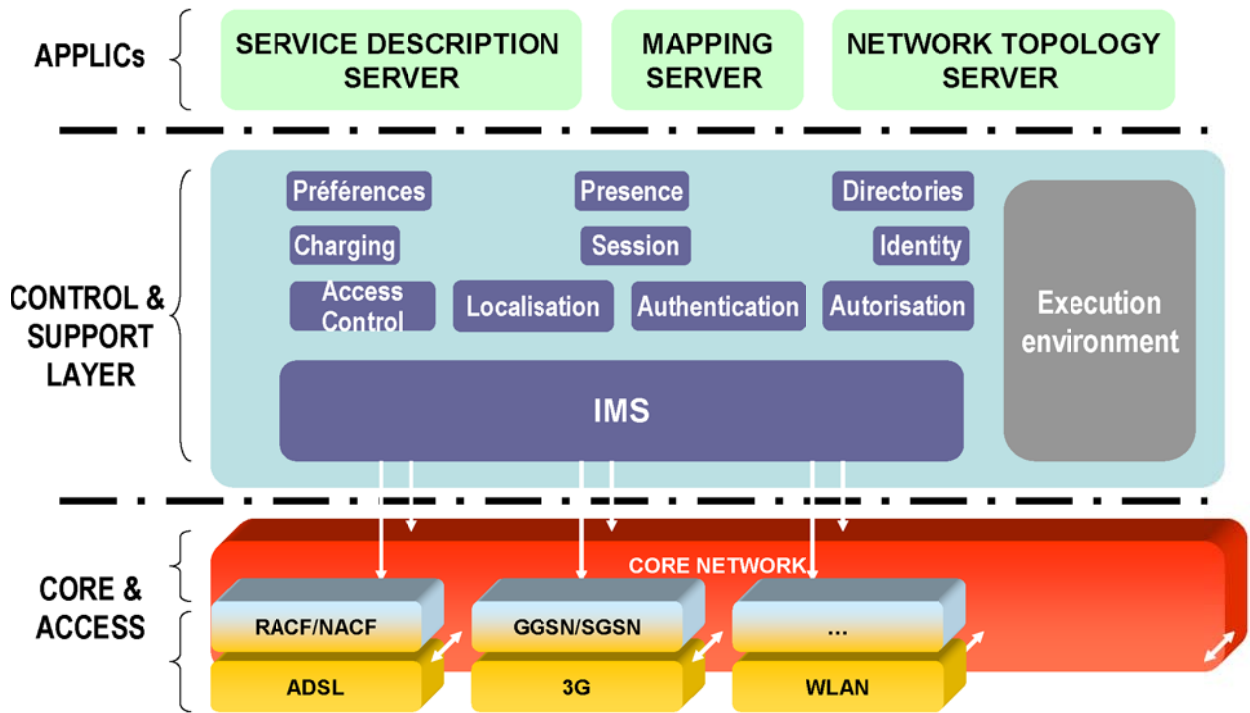
Phase 1 – Centralised Approach



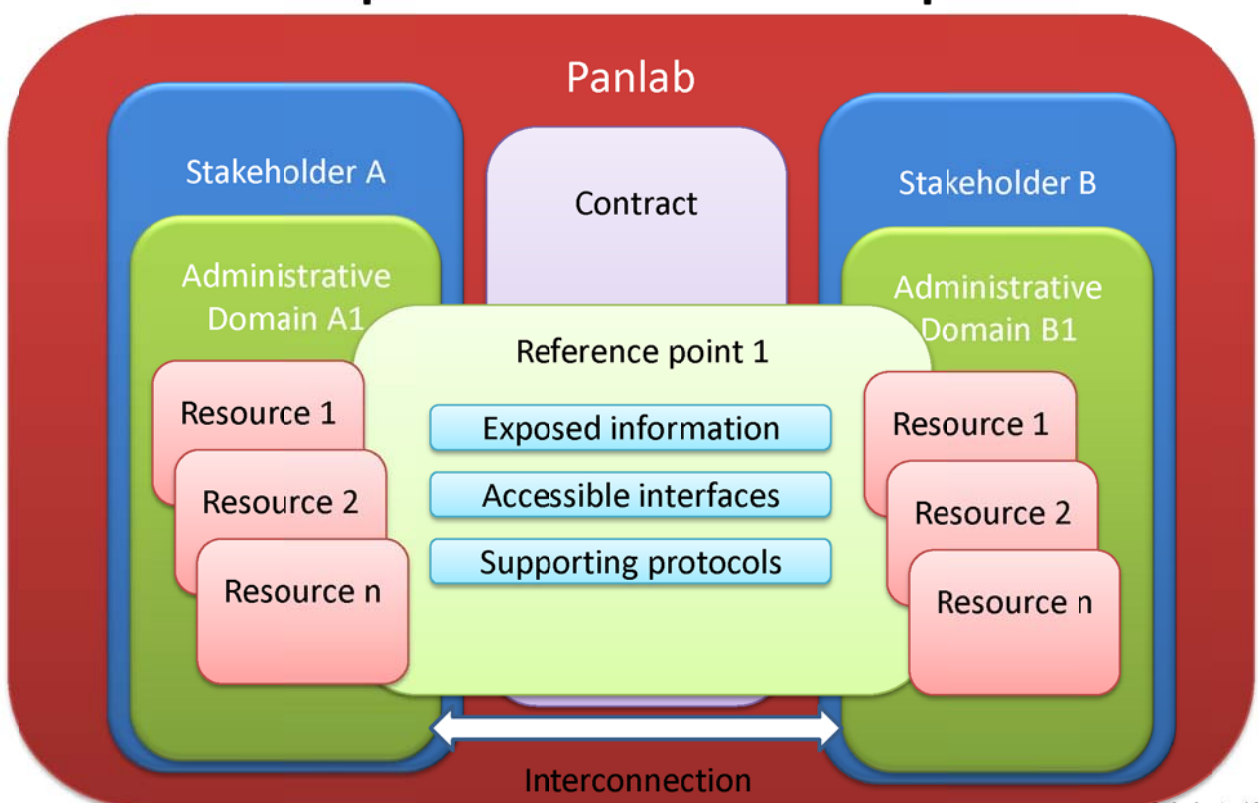
Phase 2 – Automated Approach



IMS components in federating



Operational set-up



FIRE coordination and clustering



FIREWORKS

- FIRE Community
- FIRE Strategy
 - FIRE white papers, recommendations
 - Roadmap for European Experimental Facility
- Core partners
 1. PII coordinator - Eurescom
 2. OneLab2 coordinator – Université P&M Curie
 3. DIMES as FIREworks coordinator

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PII & OneLab2 in FIREworks

- Develop metrics for the project testbeds at process level
- Provide information on possible federation of testbeds in the FIRE context
- Participate in demonstrating the Proof of Concept
- Provide best practises in overcoming operational, legal and policy obstacles in systems deployment
- Strategy discussion
- Contribution to dissemination events



FIREWORKS

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Thank you



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