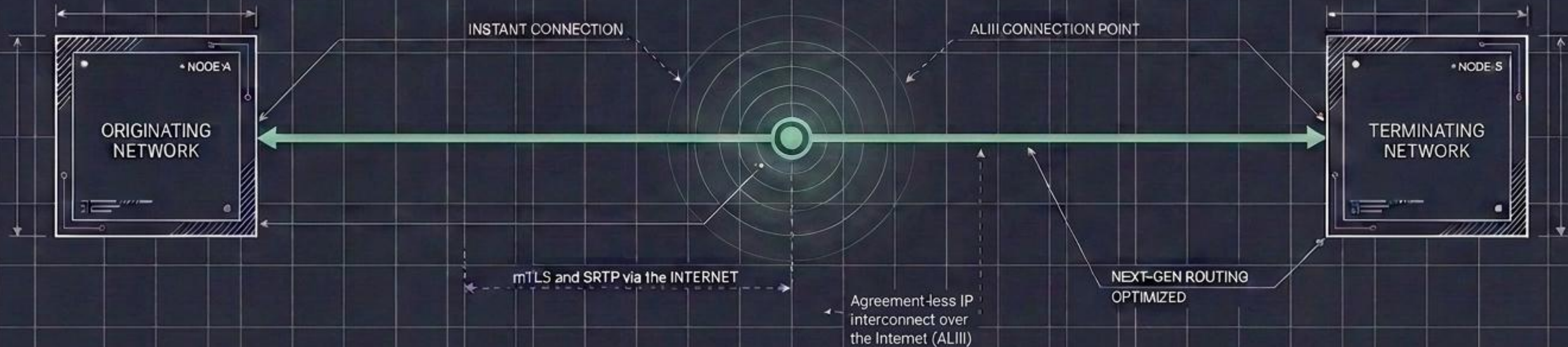


ADVANCING IP INTERCONNECTION: THE ALIII STANDARD

Navigating the FCC Transition, Agreement-Less Interconnection, and Next-Gen Call Routing.

Martin Dolly (AT&T), Matt Nickols (Verizon), and Phil Linse (Lumen)



The TDM Burden:
Inefficient, antiquated,
and costly. Hinders
STIR/SHAKEN.



MOVING FAILURE

The Proposed Deadline for All-IP Interconnects

DECEMBER 31, 2028

What's Ending:

Proposed elimination of
legacy Section 251(c) TDM
interconnection obligations.



What's Required:

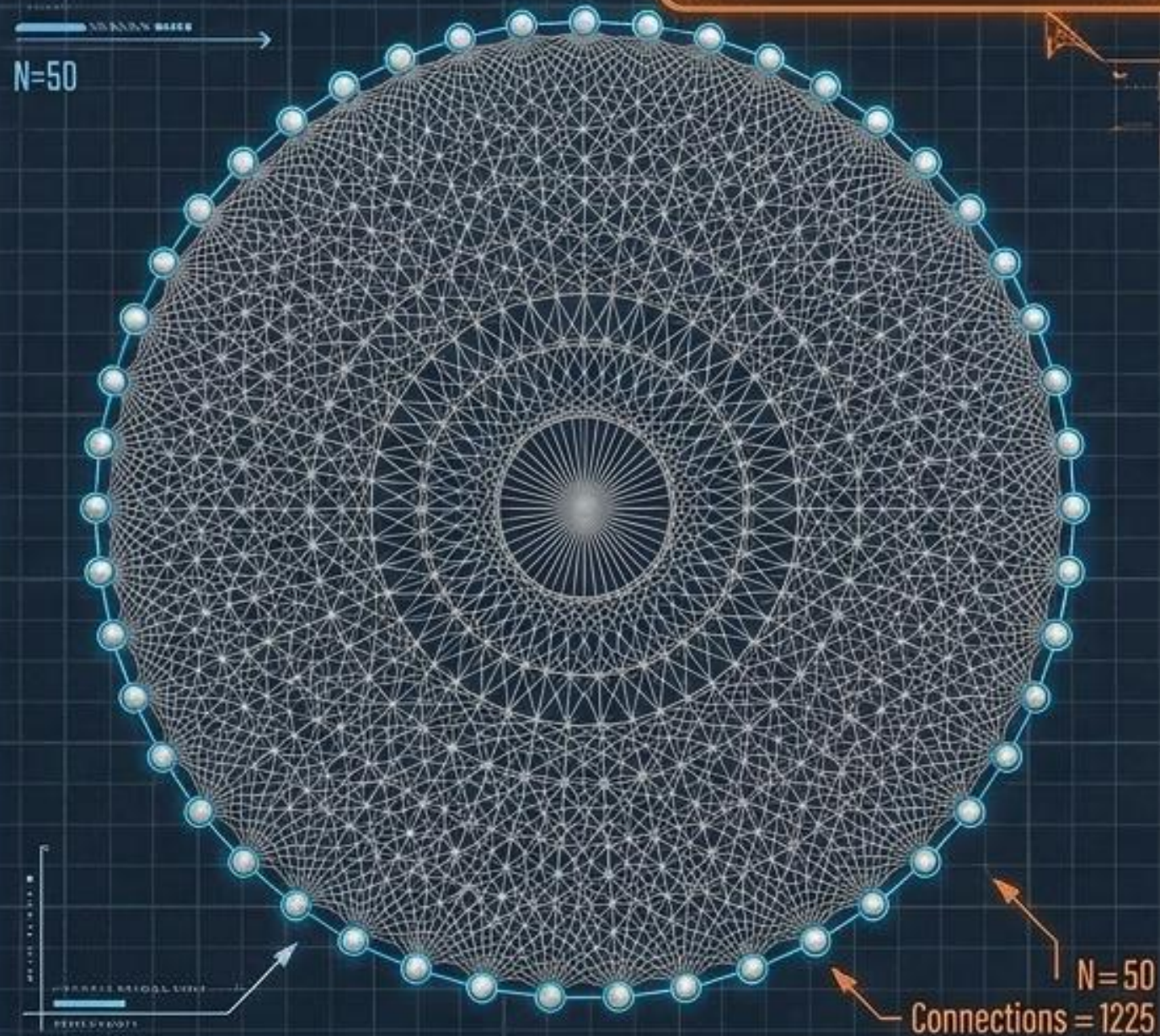
Proposed IP Interconnects.



The Impossibility of the Status Quo

The Paradox

The $N(N-1)/2$ Problem



The Bottleneck

1 **Bilateral Negotiations:**
Every connection requires months of legal, commercial, and technical wrangling.



2 **Interoperability Testing:**
Variations in SIP, codecs, and security mean extensive 1:1 testing.



The Math:
To interconnect thousands of Voice Service Providers (VSPs) directly by 2028 using traditional bilateral agreements is mathematically and operationally impossible.



$N = 1,500+$
Bidirectional Connections = 1,124,250+

Introducing ALIII

Agreement-Less IP Interconnection over the Internet

ALIII STANDARD

Pre-defined Rules

Single, non-negotiable technical standard for all AVSPs.

Zero Negotiations

No contracts, no 1:1 advance info exchange.

Public Internet

Permissive interoperability. Publish routing info and receive secure traffic instantly.

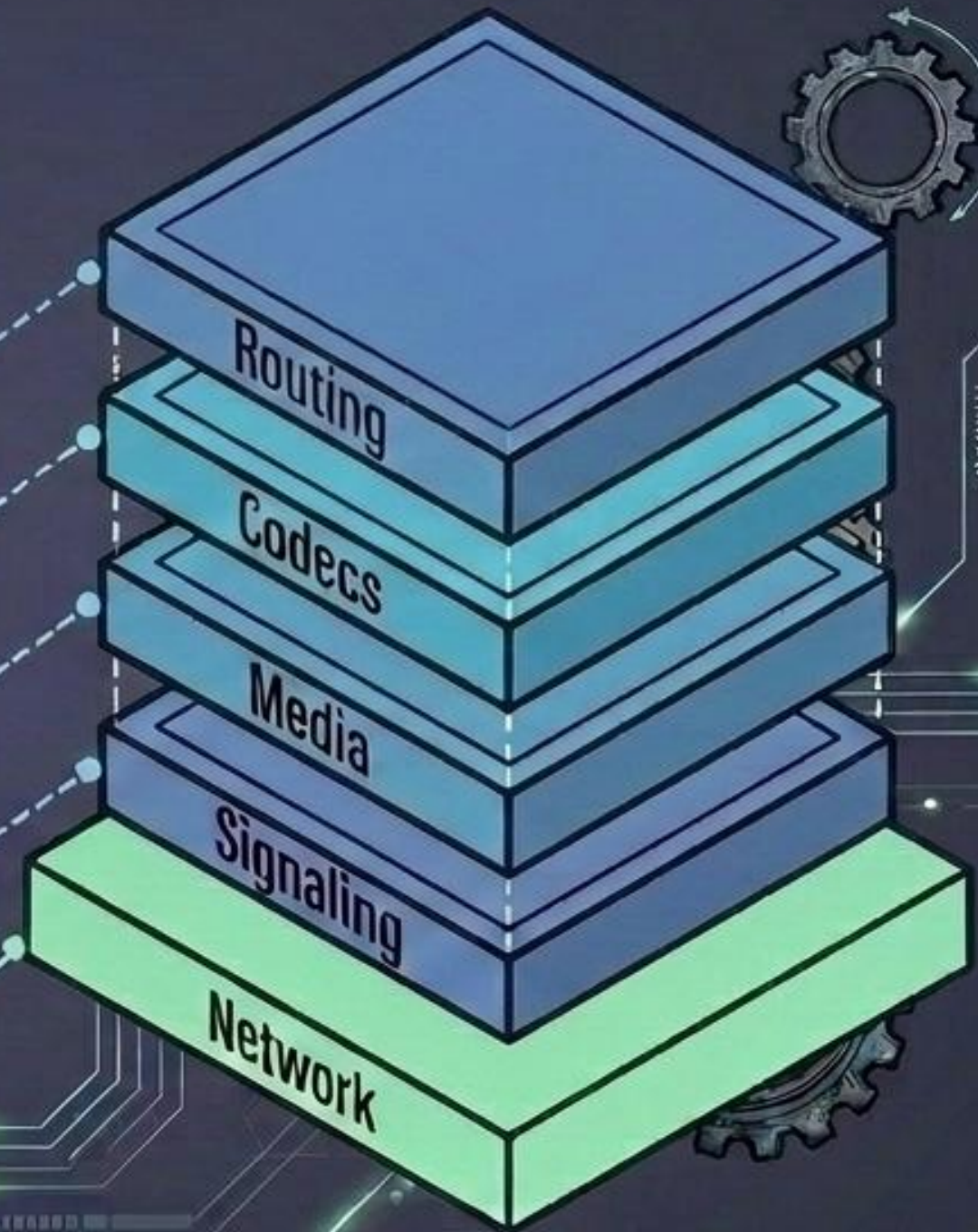
Traditional Interconnect vs. ALII

Dimension	Traditional IP Interconnect	ALII Standard
Time to Deploy	Months/Years	Immediate (upon solution availability)
Agreements	❗ 1:1 Bilateral Contracts	NONE (Agreement-less)
Transport	Private VPNs or Public Internet	Public Internet
Tech Flexibility	❗ Highly variable	Highly restrictive (Ensures 100% interop)

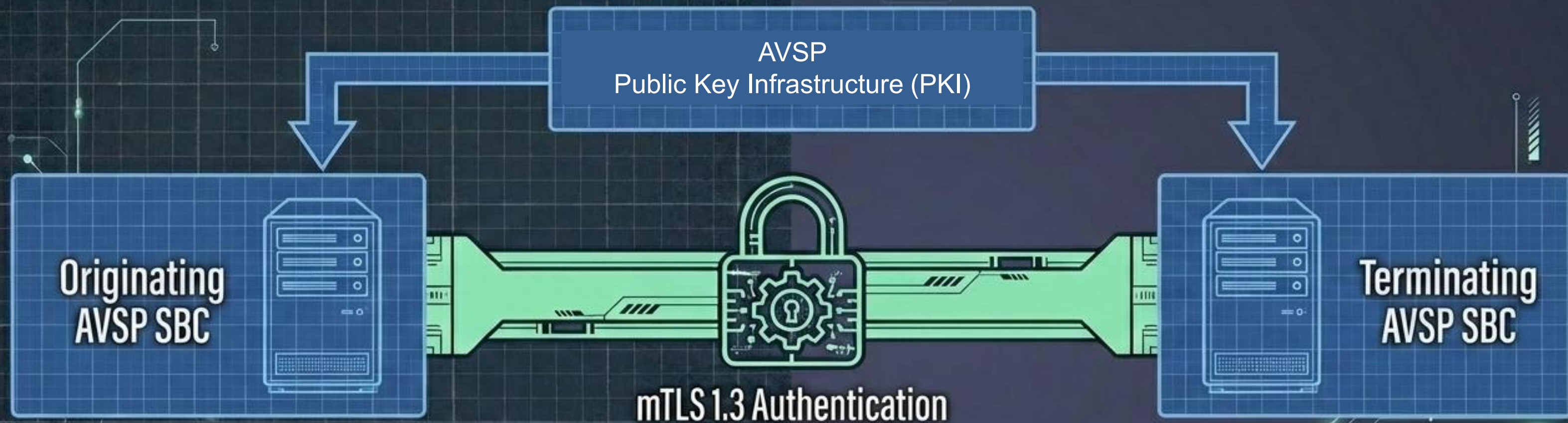
Foundational Technical Requirements

To make ALII work seamlessly and securely, flexibility may be limited and modern standards must be used.

- FQDN resolution via DNS / IP Routing Guides
- G.711 μ -law (Mandatory baseline for 100% compatibility)
- SRTP (Secure Real-time Transport Protocol)
- SIP via mTLS 1.3 (Mutual TLS using AVSP-only certificates)
- IPv6 ONLY (No IPv4 dual-stack complexity)



Securing ALII



Exclusive Access: Connections are only permitted between Approved Voice Service Providers (AVSPs).

Mutual TLS (mTLS): Both endpoints cryptographically authenticate each other before a single SIP packet is processed.

Certificate Authority: AVSPs must use an AVSP certificate issued by a CA approved by the PA following rules set by the GA appointed by the FCC

Media Encryption: All voice traffic is shielded from eavesdropping via SRTP over UDP.

Acronyms: CA (Certificate Authority), PA (Policy Administrator), GA (Governance Authority)

The Routing Paradigm

How do we find each other without an agreement?

1. Query



The Originating Provider receives a dialed Telephone Number (TN).

2. Discovery



Queries a database that associates the TN to an ALI domain name (FQDN).

3. Resolution



Queries DNS to find the physical IPv6 address of that domain.

4. Delivery



Routes the SIP INVITE directly to the Terminating Provider.

Flexible Topologies

While the protocol is rigid, deployment topologies are flexible to accommodate provider size and strategy.

Direct Mesh

OSP

TSP

OSP connects directly to TSP.
Ideal for ALIII capable AVSPs.

OSP Intermediate

OSP

private

Intermediate
Hub

TSP

An OSP uses a third party to handle ALIII
routing lookups and delivery on its behalf.

TSP Intermediate

OSP

private

Intermediate
Hub

TSP

A TSP publishes an Intermediate's FQDN as its
destination, allowing the intermediate to absorb the
inbound public traffic and pass it privately to the
TSP.

ALII is the Golden Bridge

Meets Regulatory Demands:

Retires TDM and enables compliance with the 2028 FCC timeline.

Ensures Security:

Mandates mTLS, AVSP certificates, and SRTP to secure public internet transit.

**Dec 31, 2028:
TDM Retirement**

**ALII
Standard**

**Secure, Fast,
Unified IP
Interconnection**

Saves Time & Capital: Eliminates the impossible task of $N(N-1)/2$ bilateral contract negotiations.

Enables Next-Gen Voice:
Paves the way for ubiquitous STIR/SHAKEN

ALIII Core and Associated Documents

1. Agreement-Less IP Interconnection over the Internet (ALIII) Profile

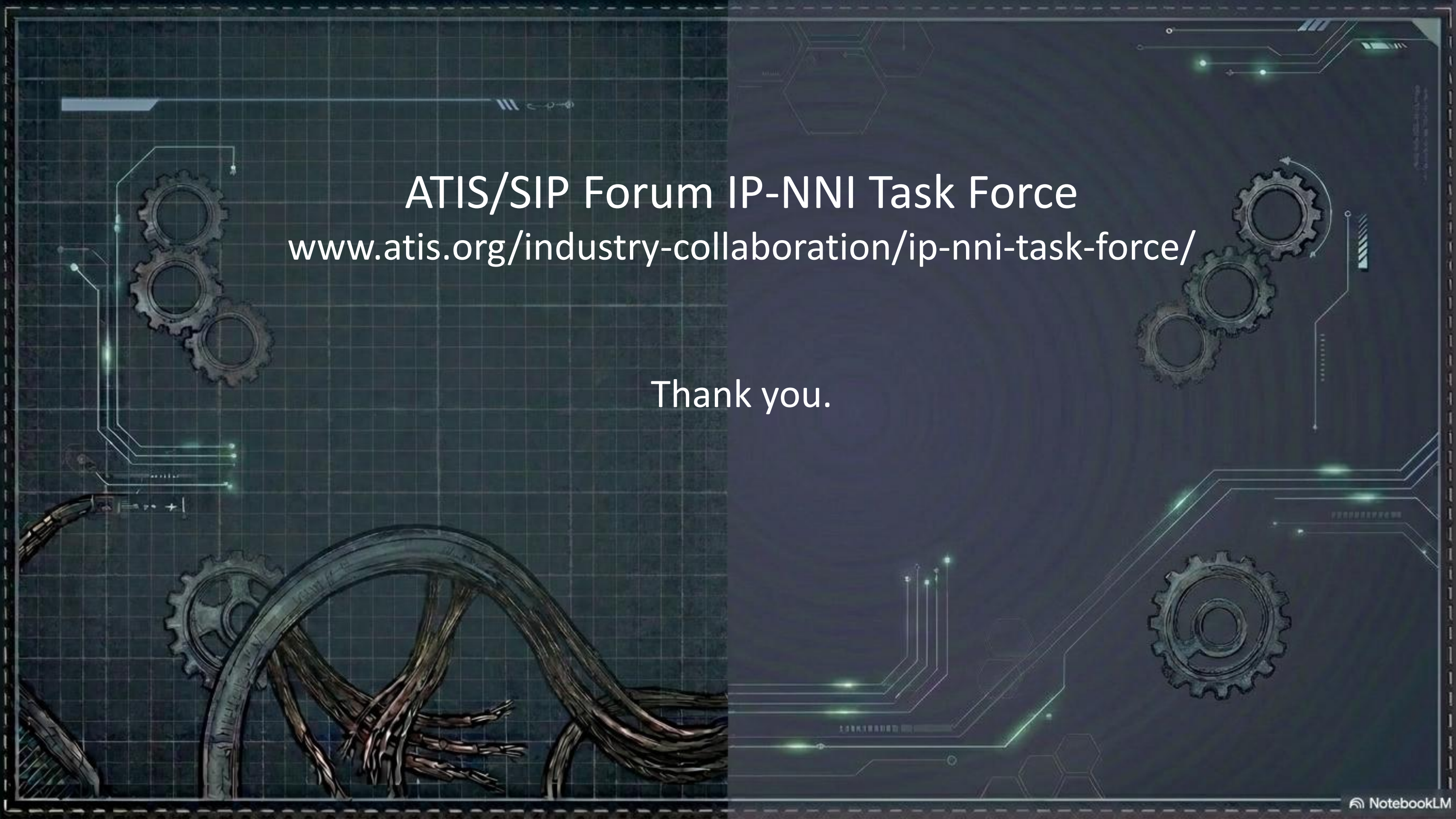
(IPNNI-2026-00012Rxxx)

2. Agreement-Less IP Interconnection over the Internet (ALIII) Discovery, Routing, and Connectivity

(IPNNI-2026-00024Rxxx)

3. Agreement-Less IP Interconnection over the Internet (ALIII) Trust Architecture and Certificate Management

(IPNNI-2026-00113Rxxx)



ATIS/SIP Forum IP-NNI Task Force
www.atis.org/industry-collaboration/ip-nni-task-force/

Thank you.