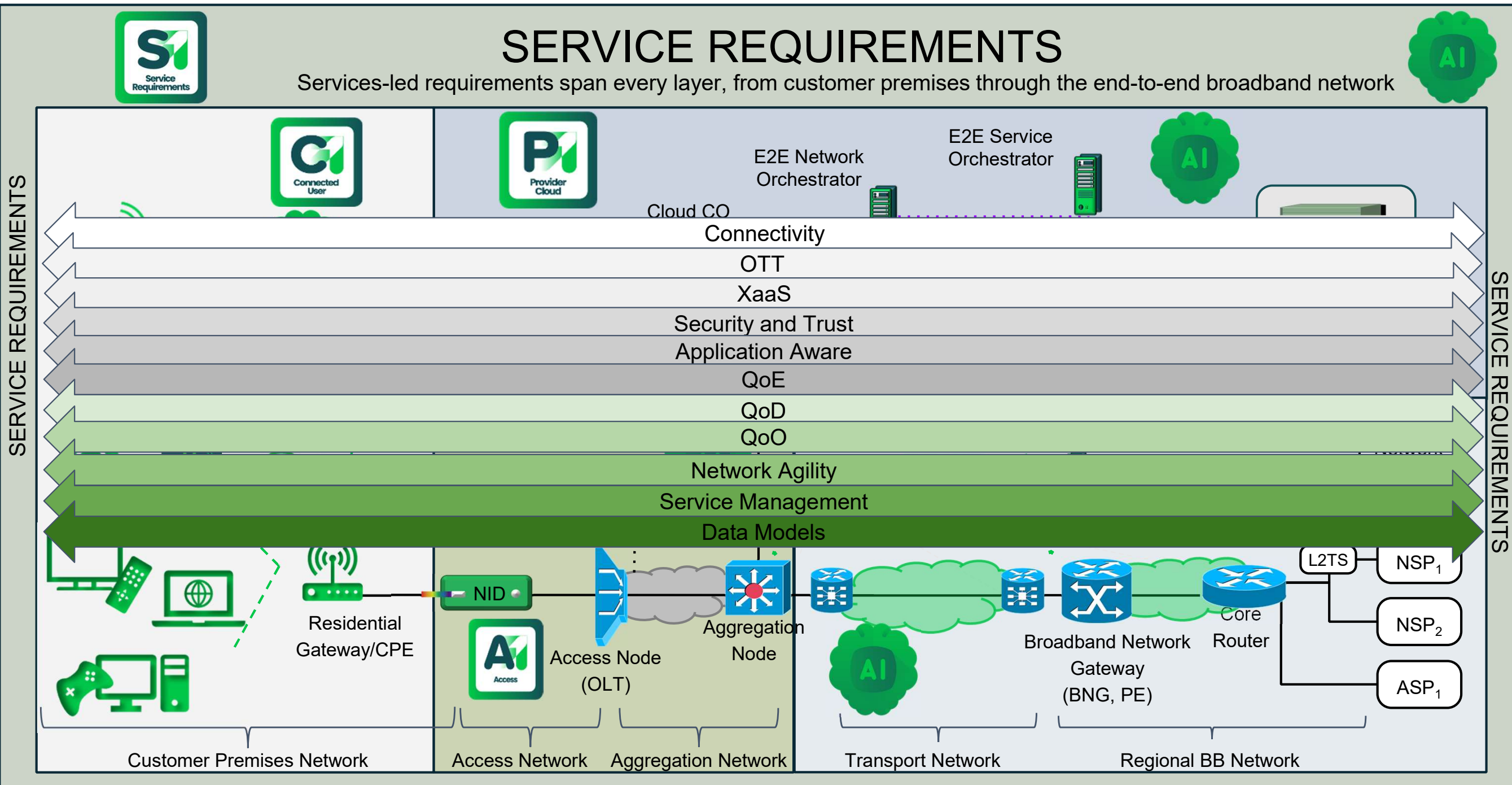
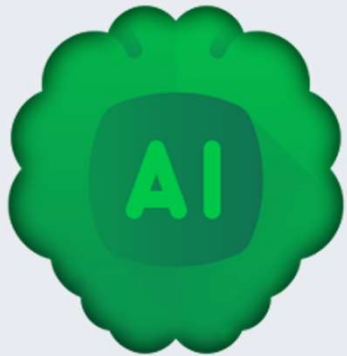


From Connectivity-Driven to an AI Services-Led Broadband

Ronan Bracken Service Requirements
Engagement Director

Broadband Forum Work Areas





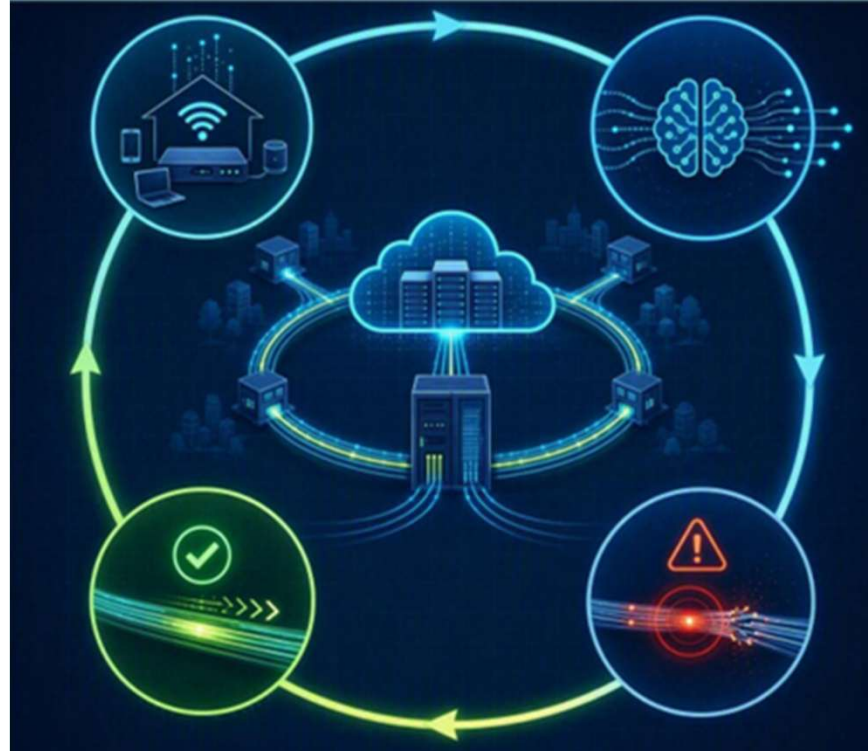
01

**AI AGENTS AS
ENABLER FOR
SERVICES**



02

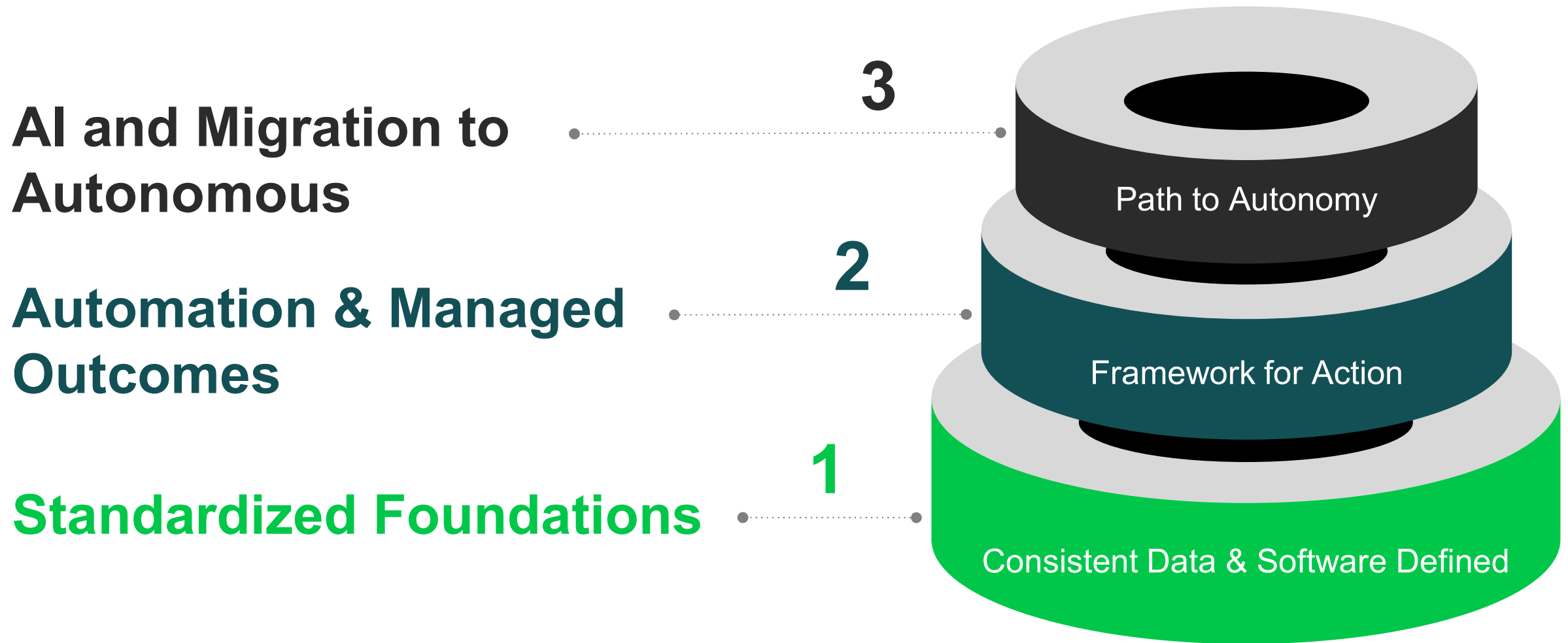
**AI ENHANCED
GUARANTEED QOD**



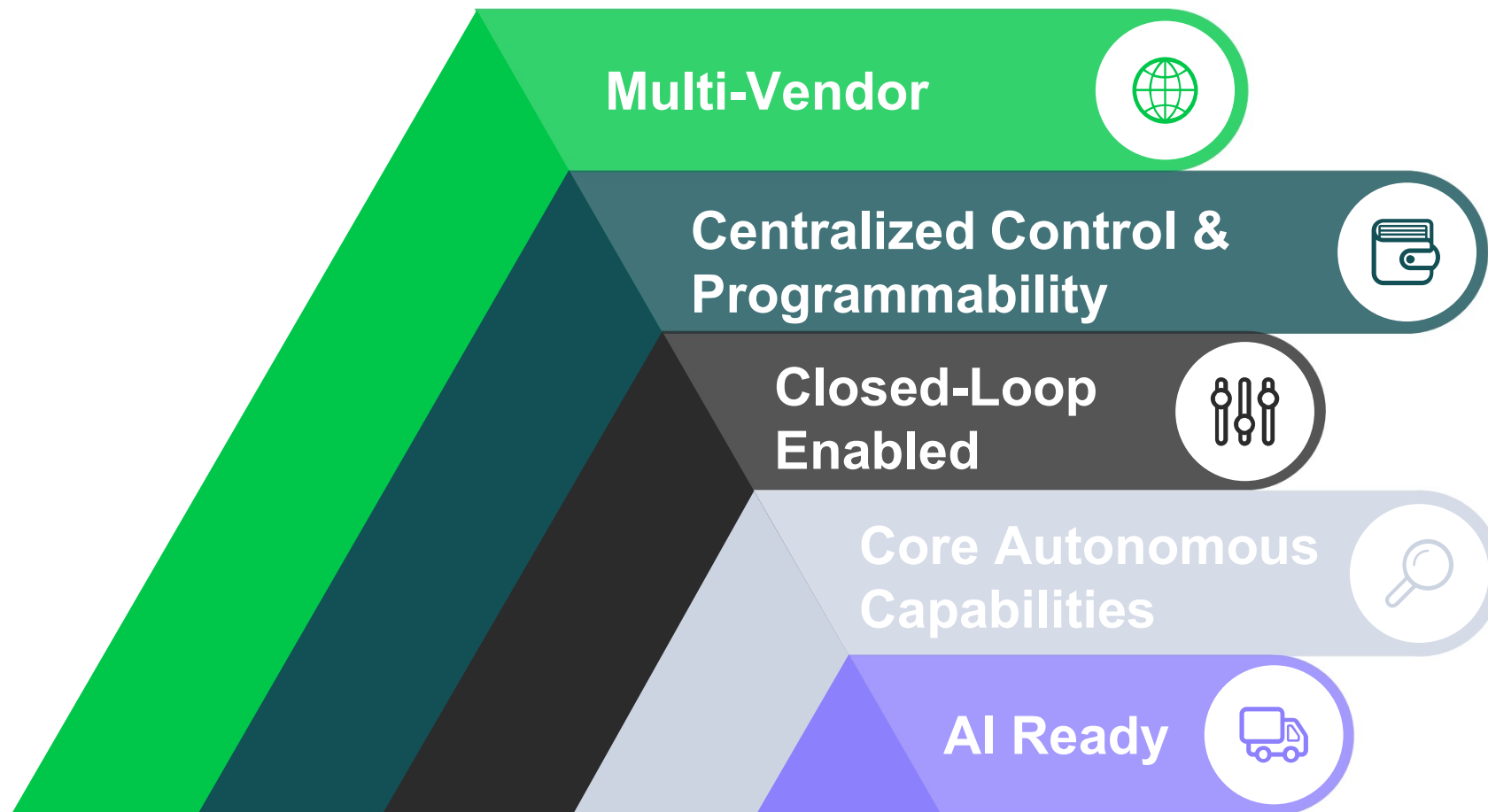
03

**AI SELF OPTIMIZING
NETWORK**

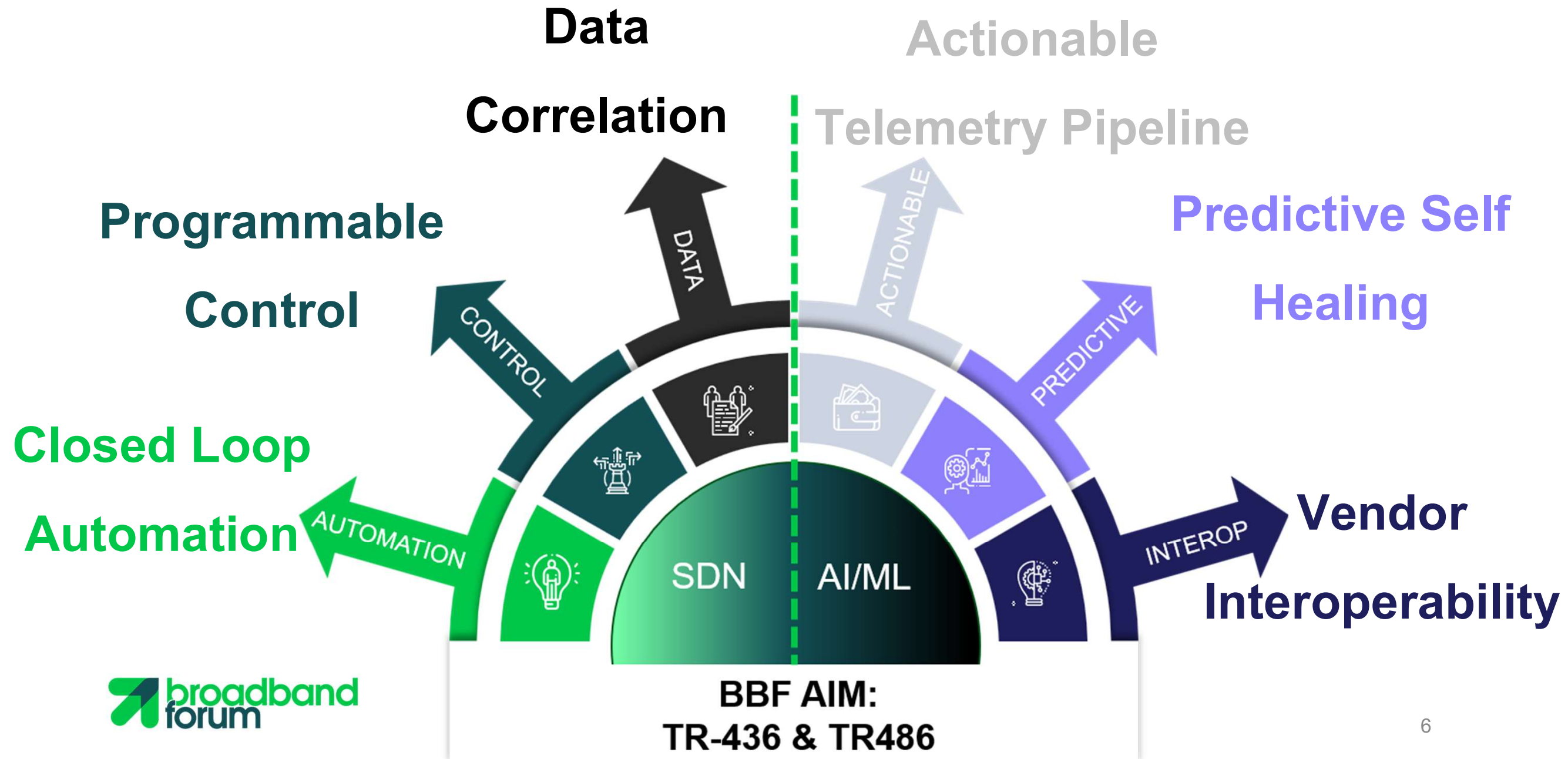
The Journey to an AI/ML enabled Autonomous Networks



Why SDN as the Foundation for AI/ML



BBF Automated Intelligent Management (AIM) - SDN to AI/ML



Contributions

AI:

WT-536 - Service Framework for AI in Broadband Networks

WT-537 - Service Requirements for AI Agents in Broadband Networks

MR-529 - AI in Broadband Networks

Related:

WT-519 - Application of L4S to Broadband Networks

WT-534 - Edge Computing Services, Use Cases and Requirements

SDO Collaboration - TM Forum

AN Level Taxonomy	L0	L1	L2	L3	L4	L5
	Manual O&M	Assisted O&M	Partial Autonomous Network	Conditional Autonomous Networks	Highly Autonomous Networks	Full Autonomous Networks
Execution	P	P/S	S	S	S	S
Awareness	P	P/S	P/S	S	S	S
Analysis	P	P	P/S	P/S	S	S
Decision	P	P	P	P/S	S	S
Intent/Experience	P	P	P	P	P/S	S
Applicability	N/A	Selected Scenarios				All Scenarios

P

People (manual)

P/S

Both: People assisting System

S

System (autonomous)

In Conclusion

From speed to services - AI enabled broadband

Standards make it deployable

AI is the cornerstone for the future, but it also needs a foundation

The work is underway – Let's work together



Backup Slides

Challenges

Security & Threat Surface

- Expanded Attack Vectors
- Blast Radius of Automated Actions

Trust & Explainability

- The Black Box Problem
- Lack of Formal Verification

Volume & Velocity of Datas

- Telemetry Bottlenecks
- Data Quality & Poisoning

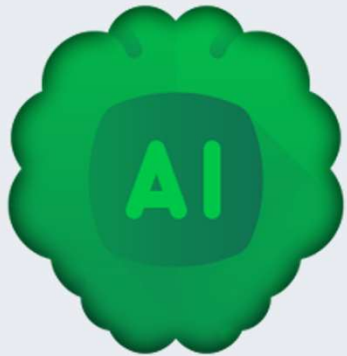
Network Agility & Multi-Domain Coordination

- Cross-Domain Silos
- Control Loop Collisions

Network Access & Ownership (Multi-Tenancy & Edge)

- Fragmented Administrative Control
- Shared Infrastructure Liability

MR-529 AI In Broadband



02

AI ENHANCED GUARANTEED QoD

for AI service flows (AI training & inference, AI XR, AI fitness, AI education, AI Health etc.).
Such data bearing requires deterministic end-to-end network capability

01

AI AGENTS AS NEW SERVICES

From AI chatbots → to intelligent customer support → AI enhanced assured service connectivity → a fully AI managed smart home.

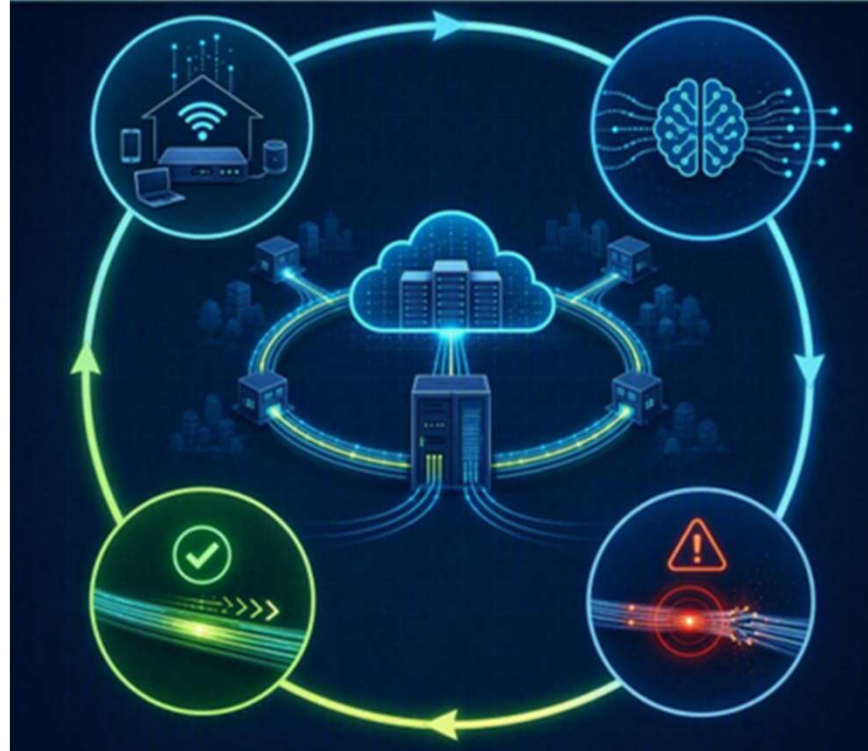
USP and TR-181 as the foundation



03

AI SELF OPTIMIZING NETWORK

Efficient recognition-identification-recovery of network faults, predictive maintenance, energy consumption tuning, network optimization.



The Journey to an AI/ML enabled Autonomous Networks

Phase 3: AI and Migration to Autonomous

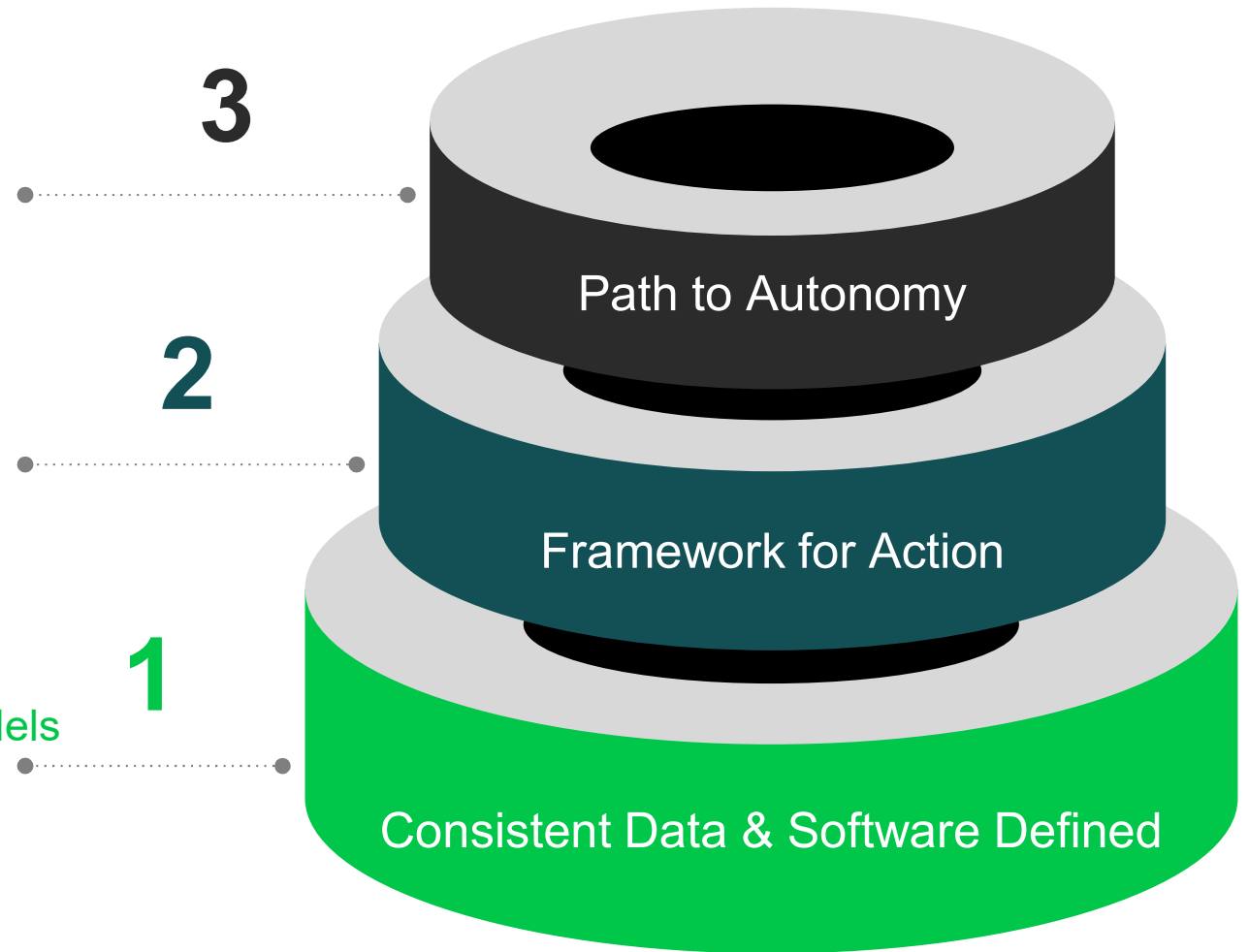
- AI in Broadband Architecture
- Predictive Optimization
- Network-as-a-Service
- Business Intent Integration

Phase 2: Automation & Managed Outcomes:

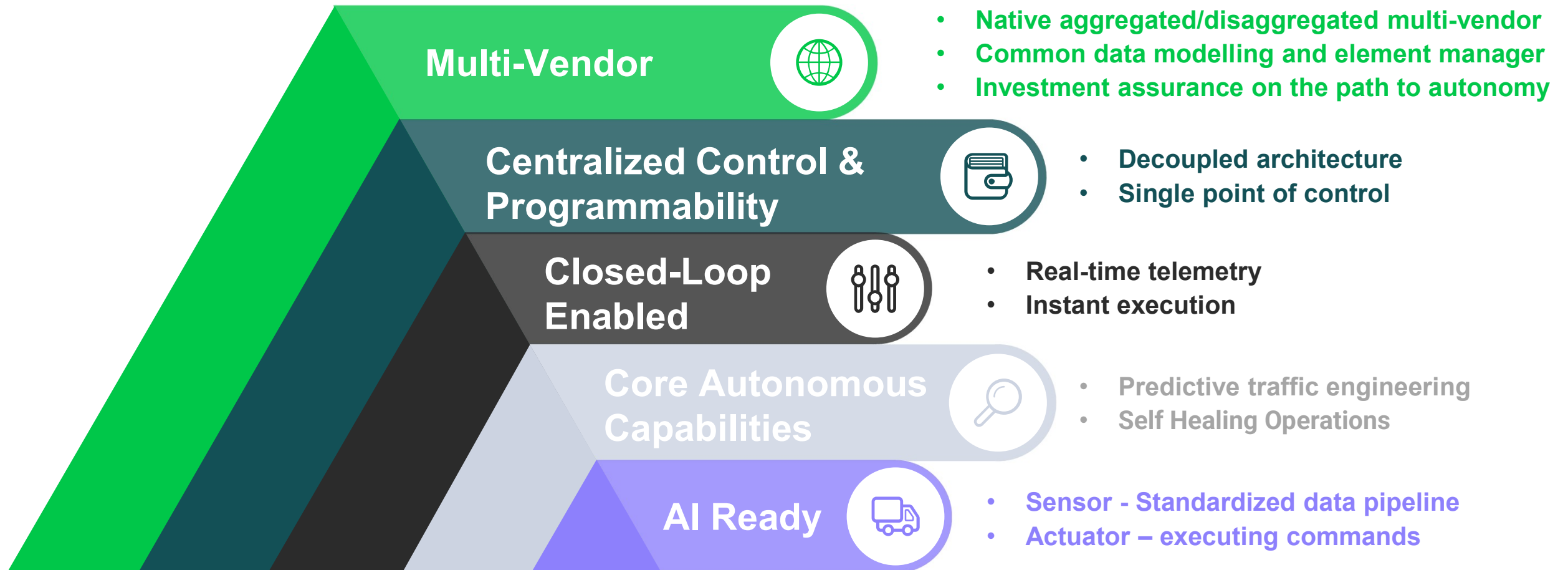
- Actionable APIs
- Dynamic Usage Profiles
- Defining Experience with QOE/QOD

Phase 1: Standardized Foundations

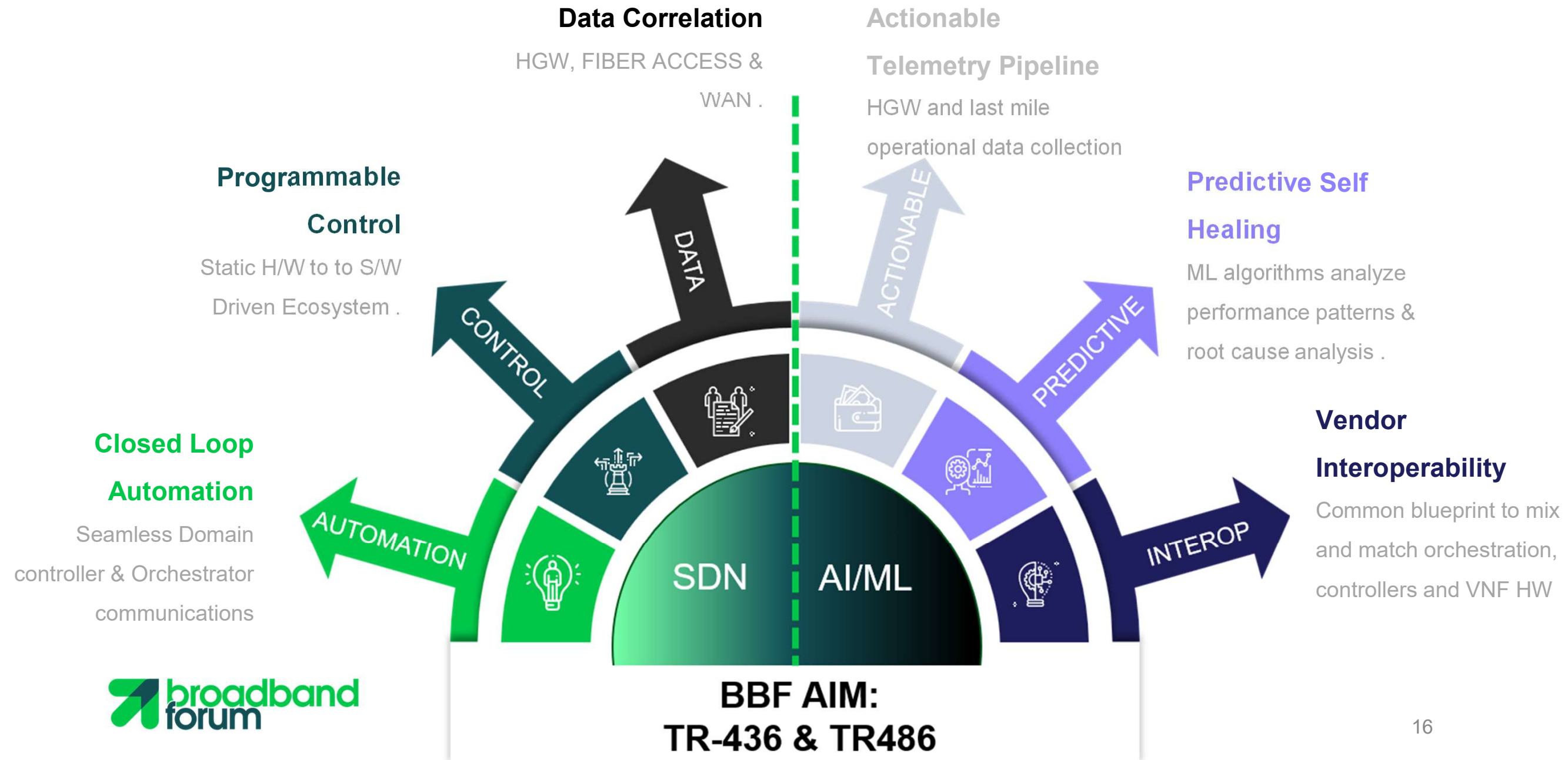
- Standardized Data & Inventory Models
- Structured Telemetry
- SDN, CloudCO, and Convergence



Why SDN as the Foundation for AI/ML



BBF Automated Intelligent Management (AIM) - SDN to AI/ML



AI and Related Service Requirements - The Next Steps (Ongoing)

AI:

WT-536 - Service Framework for AI in Broadband Networks

- AI as a Service: Exposure via APIs, Experience Assistance, AI-assisted service applications
- AI for the Network: Network Assurance, Enhanced Network Capabilities, AI inference applied to security, Autonomous Network, Cross-domain/cross-layer energy saving
- Network for AI: The broadband network shall support high-throughput, low latency and lossless transport of distributed AI/ML training traffic, High-level AI-driven fixed access & in-premises service framework

WT-537 - Service Requirements for AI Agents in Broadband Networks

- This project defines the service requirements for AI Agents for broadband networks
- High-level framework for AI agents in broadband networks and Agent requirements

Related:

WT-519 - Application of L4S to Broadband Networks

- Defines an architectural framework for implementing IETF-specified L4S mechanisms into carrier broadband networks, spanning the home network, access links, and Broadband Network Gateways

WT-534 - Edge Computing Services, Use Cases and Requirements

- Evaluate capabilities of access and converged architectures for edge computing, enabling new applications. Focus on low-latency and high-bandwidth services, multi-slicing and resource isolation, fixed mobile convergence, leveraging existing operator assets.

In Conclusion

From speed to services – AI enabled broadband

Differentiation and monetization now come from the experience delivered, not the bandwidth sold.

AI/ML and a path to network Autonomy will be the enablers for a more agile “Services-Led” broadband reality

Standards make it deployable

Multi-vendor interoperability, lower integration cost and a migration path that protects today's investment.

AI is the cornerstone for the future, but it also needs a foundation

Standardized data models, structured telemetry, CloudCO and SDN come first — autonomy is built on them.

The work is underway – Come and Join us!

TR-436, TR-486, MR-529, WT-519, WT-534, WT-536 and WT-537 are defining the AI service requirements — But it is only the starting point, get involved and let us help shape the future AI broadband world

Thank you and Get involved

More about Broadband Forum at:

<http://www.broadband-forum.org/>

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CEO, Craig Thomas at

cthomas@broadband-forum.org



Challenges

- Security & Threat
- Trust & Explainability
- Volume & Velocity of Data
- Network Agility & Multi-Domain Coordination
- Network Access & Ownership (Multi-Tenancy & Edge)