Appledore RESEARCH



Autonomy through an independent lens

Autonomous networks:

status, reality and progress
DTW Dallas 2026

What this talk covers



- A long journey — beginning with NFV and SDN; closed loops; Intent; and AI
- Research and sources
- Recap of the essential autonomy and AI concepts
- What our research revealed:
  - The good
  - The bad
- Market and progress metrics
- Summary

Where does this data come from?

Hundreds of 1:1 briefings

Dozens of major reports

Many dozens of individual solution profiles

Global industry survey

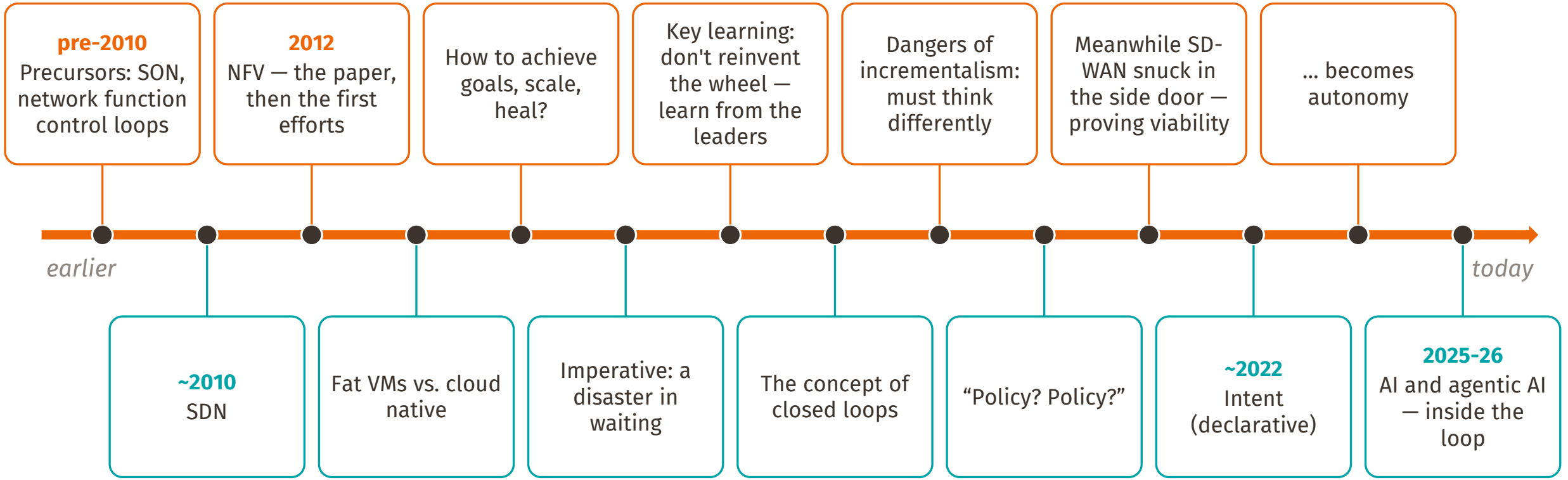
Market forecast and share (our sausage factory)

All research on our own nickel — and therefore independent



Recent Appledore coverage of autonomy and agentic AI

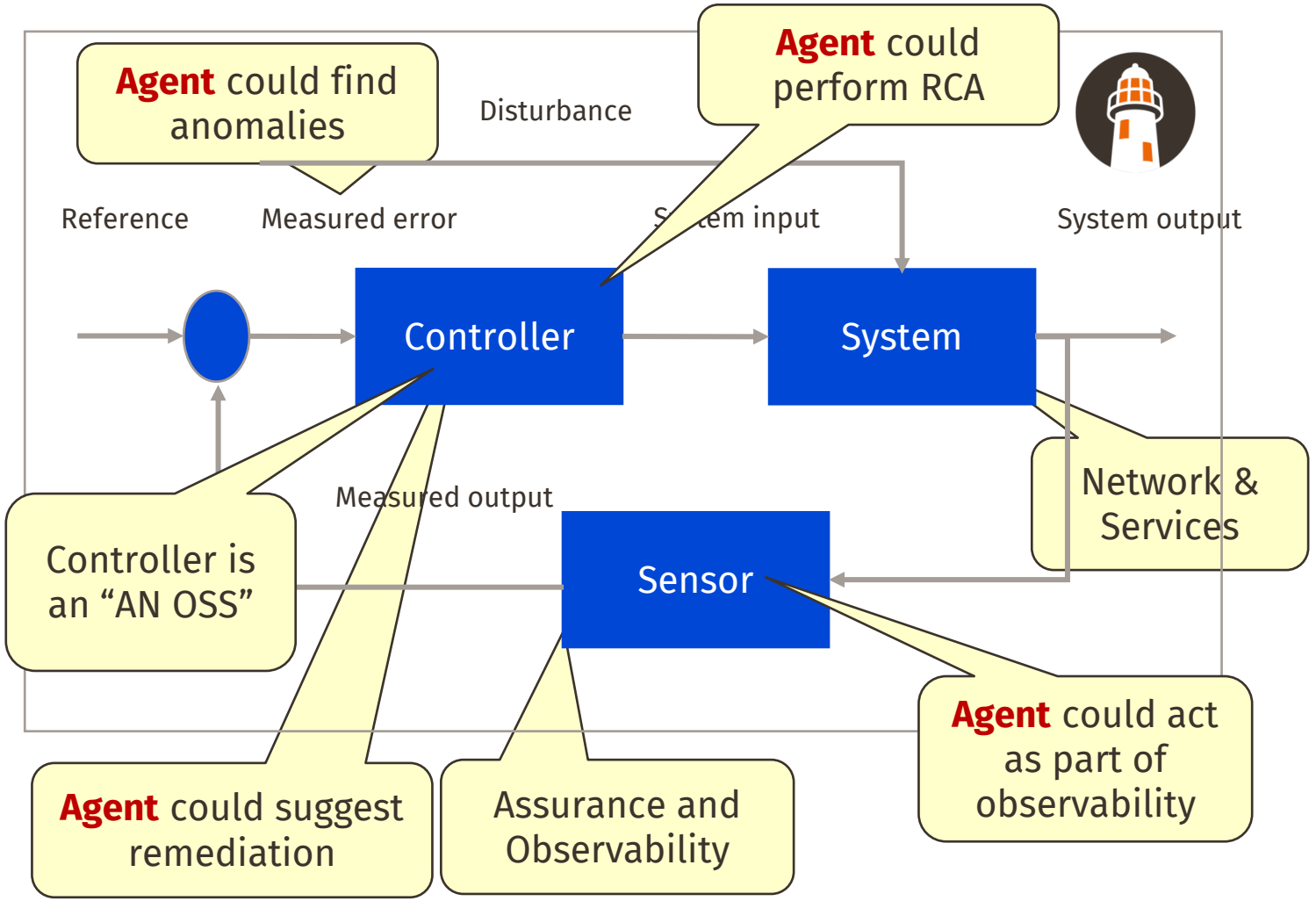
It's been a long journey



Every step since SDN has pushed toward declarative intent. Agentic AI is the newest layer on that foundation — not a replacement for it.

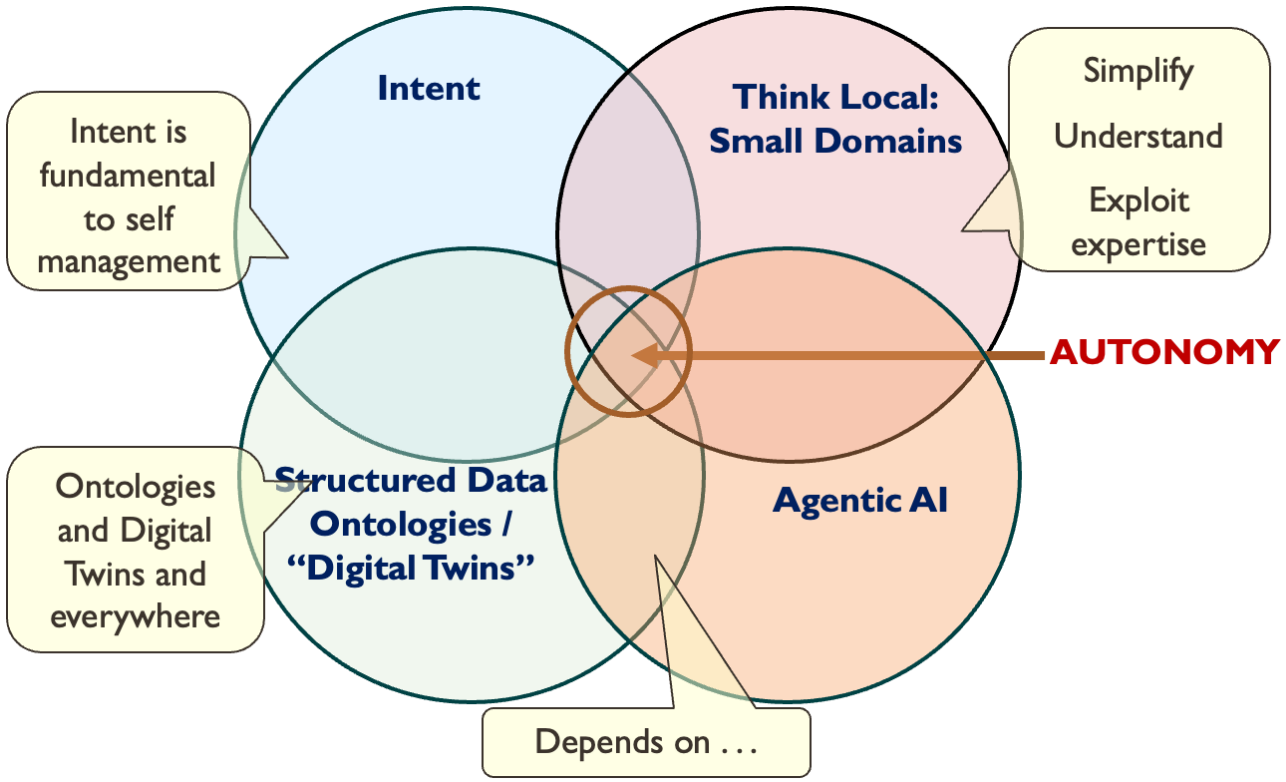
tmforum *. . . Has created a common purpose around autonomy, and "if you can't measure it, you can't manage it"*

Control Loop with Agentic AI



- Textbook Control Loop Base
- Control theory is the basis of Autonomy
- Agents in the autonomous loop:
  - Must conform to / integrate into autonomous control loop
  - Not an "Agent silo!"
  - Can implement many tasks in the loop
  - There will likely be several specialized agents
  - However, Agents are not ideal for all tasks

Four Pillars of successful autonomy



- Legacy mechanization ≠ autonomy
- You cannot "bolt" autonomy or Agentic AI onto legacy
- Intent is the foundation of all autonomous goodness
- AI agents depend on a proper Intent/Autonomous control loop
- . . . As well as a proper foundation including curated data, digital twin, topology, guardrails and MCP/APIs
- Act local (then federate/aggregate)

The good, the bad — and the right question

THE GOOD

- Intent took hold from ~2022 — IP domain controllers, CDSO, and now RAN and broadband access
- Leaders accept that AI augments intent rather than replacing it
- Infrastructure first: valid data, ontologies, guardrails, atomic agents, MCP APIs

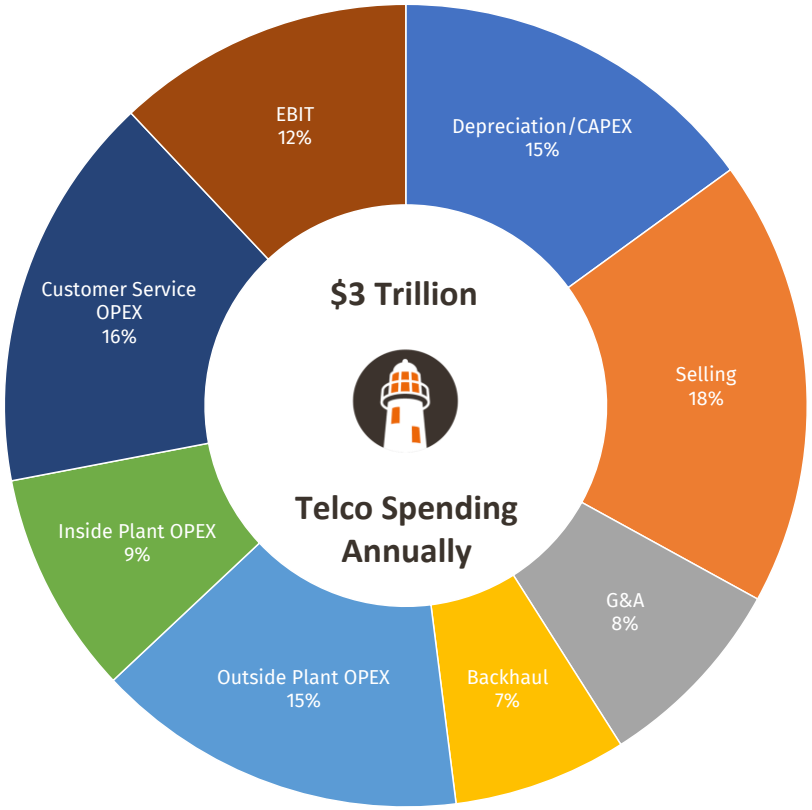
THE BAD

- “Magical thinking” — the hope that AI lets us skip the hard work of intent
- Technology (vendor SW) proving agile; organizational structures, processes and incentives less so
- Islands without a plan

Don't ask “what maturity level?” — ask “L4 for what task?”

High-value use cases. Narrow tasks first. Then aggregate upward — and get more granular still.

Investment in autonomy? Follow the money…

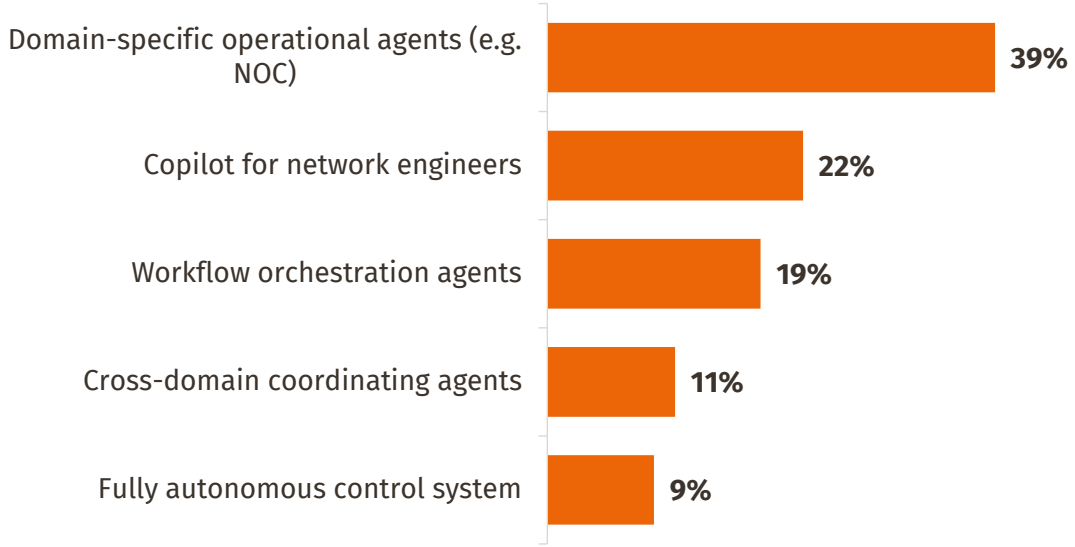


Where money goes in network operators today
Source: Appledore Research

- High tech hardware is sexy, but maybe only 15% of TOE
- The real money is in Operations (and spectrum)
- Inside plant promises greatest opportunity for hands-off closed loop autonomy
- Outside plant involves more money, more labor and opportunity for jumps in productivity, accuracy and MTTRs.

What operators think

Where they would put agents



Well-bounded, domain-specific and role-augmenting uses dominate. End-to-end responsibility is still the exception.

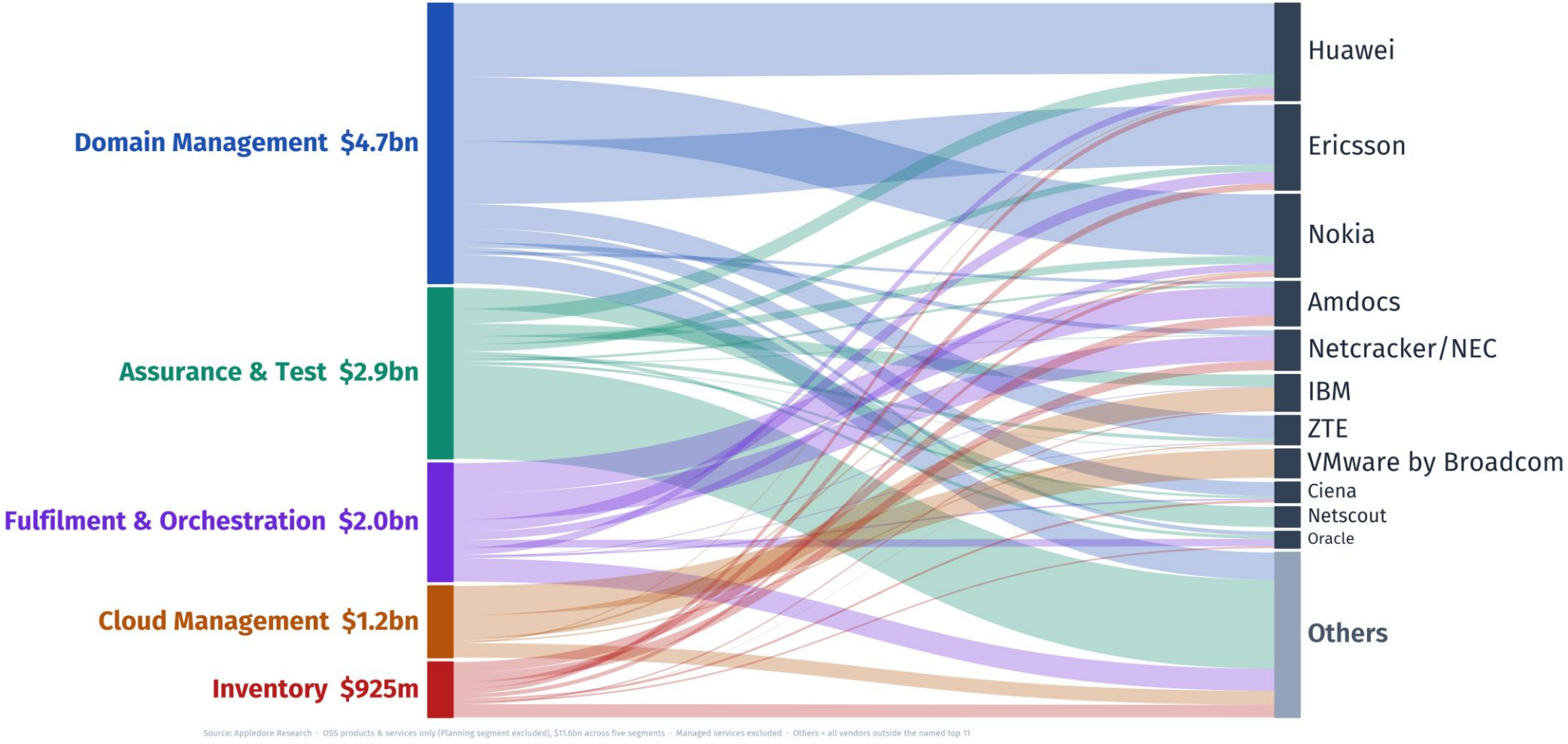
What's in the way

	Total	North America	Europe	Asia-Pacific	Middle East & Africa	South America
Base: All Respondents	**54**	**15**	**14**	**10**	**7**	**8**
Data quality issues	31%	40%	14%	30%	57%	25%
Data availability/accessibility issues	41%	33%	50%	30%	43%	50%
Organizational trust in agentic AI	20%	20%	29%	20%	0%	25%
Integration complexity	39%	33%	29%	50%	71%	25%
Cost concerns/ lack of clear ROI	48%	53%	43%	60%	14%	63%
Vendor product immaturity	9%	0%	21%	0%	14%	13%
Understanding impact on current job roles	11%	20%	14%	10%	0%	0%

- Cost / ROI is the most commonly cited issue — everywhere except MEA
- Data accessibility is the top issue in EU and South America
- MEA is least confident on integration complexity, most confident on trust and jobs
- Few are concerned about vendor maturity outside the EU

Source: Appledore Research operator survey

OSS by Segment and Supplier, 2025



Source: Appledore Research | OSS products & services only — Planning segment and SI services excluded. Others aggregates all vendors outside the named top 11 ($2.9bn combined). Vendor totals reflect the five included segments only.

Summary

- Software vendors — especially domain controller vendors — are saying the right things and moving in the right direction
- Deploying, integrating and operating at scale is harder …
- Progress will come domain by domain — likely a 5-10 year process
- Agentic AI, used wisely, can greatly accelerate tasks that have vexed automation for decades
- Concerns:
  - While technology changes, organizational structures, processes and incentives remain stubborn
  - Islands without a plan
- Keep it simple

Summary

1. **The direction is right.** Vendors — especially domain controller vendors — are saying and doing the right things.
2. **Scale is the hard part.** Deploying, integrating and operating at scale; progress will come domain by domain, over five to ten years.
3. **Agentic AI accelerates — it doesn't shortcut.** Used wisely it cracks tasks that have vexed automation for decades.
4. **The obstacle that remains is organizational.** Structures, processes and incentives move slower than the technology — and islands without a plan are still islands.

Keep it simple.

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Insight and Analysis for Telecom Transformation

