



WHOLESALE PLATFORM

Enabling open, standardized
wholesale access to fiber
infrastructure across Norway.



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Why standards?

Industry challenges in Wholesale Broadband interoperability



Difficult to meet Open Access regulatory requirements



No common ways for buying, selling & operations of wholesale fiber services between Providers



Heavy reliance on numerous (N x M) bespoke arrangements



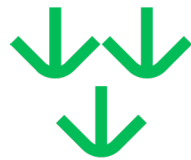
Highly manual, fragmented processes between Providers



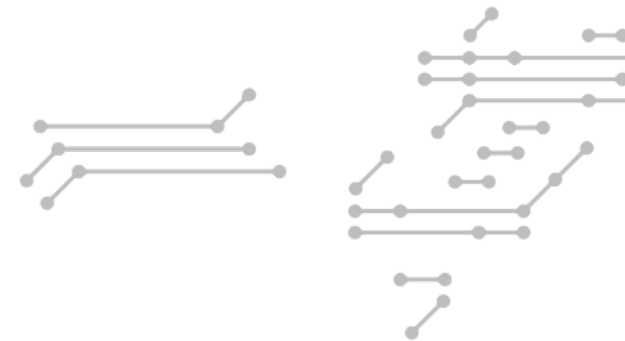
Bespoke Partners onboarding



Lack of capabilities supporting full service lifecycle



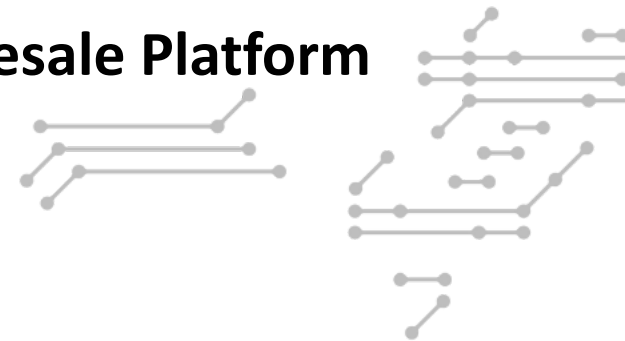
Inconsistent and limited Customer Experience



Consumer Wholesale Broadband Automation



- Standardization project kicked off in 2023 under leading telecom standardization body: TM Forum, aim **to specialize existing TM Forum standards for Consumer Wholesale Broadband**
- Since then, 3 Industry catalyst Showcase projects demonstrated **standard is applicable for the entire service lifecycle**
- The standard **is now used in production** in UK and Norway
- Amartus & Lyse (main Fiberhub owner) were leading the Standardization project & Catalysts since the very beginning
- We've leveraged the newly developed standard to build a **Wholesale Platform in Norway for Fiberhub**
- The Wholesale Platform uses proven, globally deployed **Amartus nBrace™ B2B2X Automation Solution**



Fiberhub Wholesale Platform

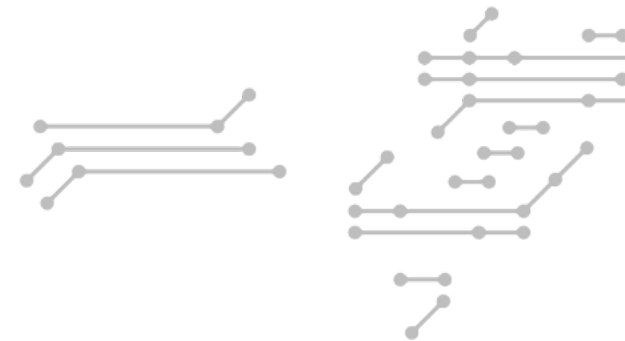


A Neutral Wholesale Hub

Leading Norwegian fiber operators open their networks through a joint company **Fiberhub** — a neutral and independent actor serving all Consumer broadband providers on equal terms.

Owned by Norway's Leading Operators

Altifiber, Eidsiva Bredbånd, Eninvest, Haugaland Kraft Fiber, Lyse Fiber, NTE Telekom, Signal Bredbånd, Viken Fiber, and Lyse Tele.



Fiberhub Wholesale Platform Principles



Neutral & Open

Available to all Network Owners and Access Buyers without preference.



Fully Automated

Complete wholesale broadband service lifecycle handled digitally end-to-end.



Cost-Oriented Pricing

Network Owners finance platform use and operations, with no markup.



Free for Access Buyers

Service providers pay nothing to access the platform.



No Lock-In

Built on industry TM Forum Open Standards for easy adoption and full interoperability.



Non-Discriminatory

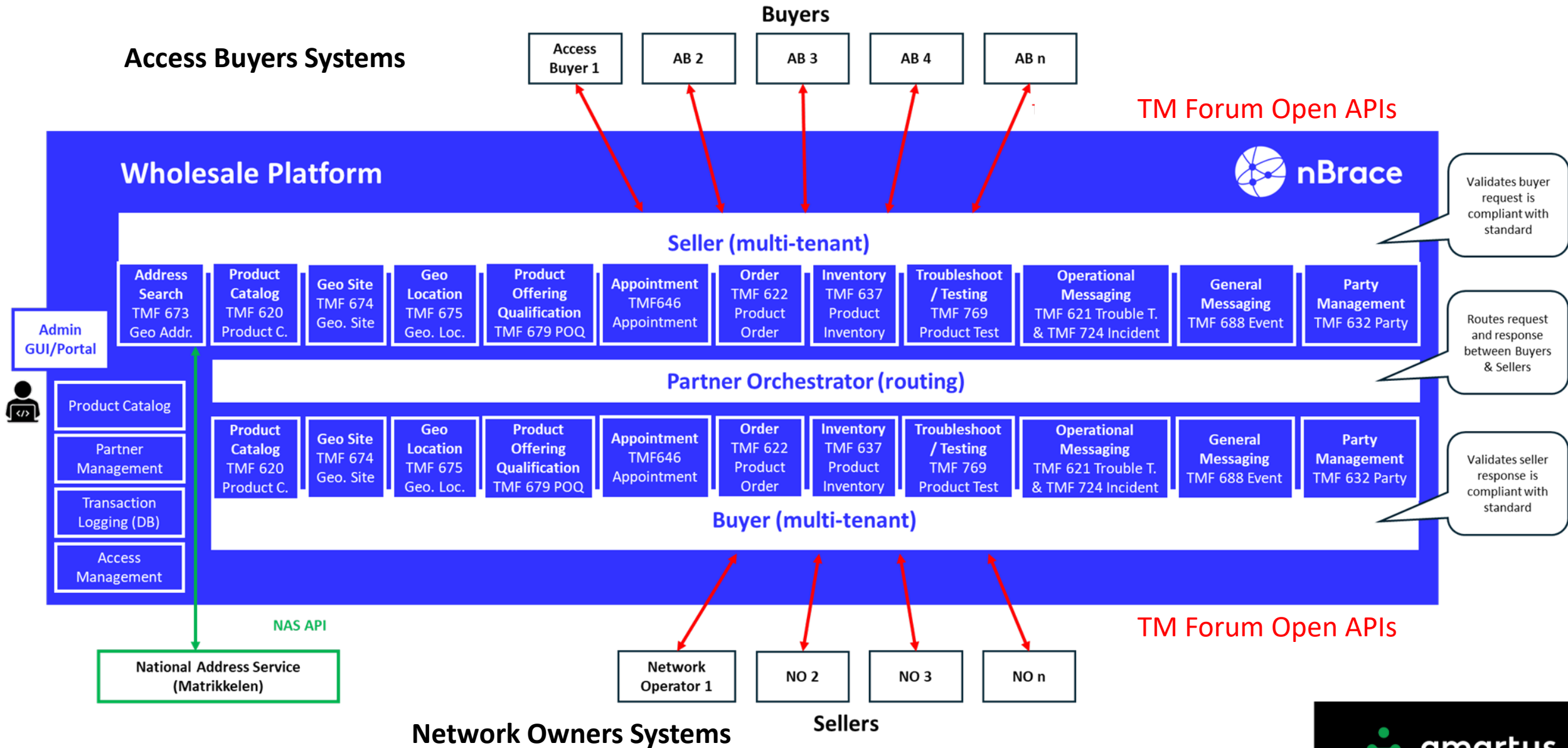
Platform owners and users receive equal treatment at all times.

Platform Core Principles

- Built on industry **Open Standards from TM Forum**
- Fiberhub's platform is built on the **Open Digital Architecture (ODA)** concepts, developed by TM Forum
- It leverages **TM Forum Open APIs** specialized for Fiberhub's Consumer Wholesale Broadband Use Cases
- It uses specialized **TM Forum Standardized Wholesale Broadband Product Models** for Norwegian Market
 - The core offering is a standardized **Ethernet Layer 2 bitstream** with predefined speeds, ensuring predictability and straightforward integration for all participants
- Platform integration responsibility held by Network Owners and Access Buyers



Platform Architecture diagram



Platform functional capabilities

- The main goal is to enable **inter-provider buying, selling & operations**



- Standardized APIs supporting **full services lifecycle** from serviceability check, ordering, delivery, troubleshooting to termination.
- Uses locally refreshed copy of National Address DB
- Uses some marketplace concepts – at POQ the Platform checks all Network Owners who can serve an address, then presents available options for ordering
- **Stores & validates agreements between Access Buyers & Network Owner**
- Designed for Wholesale Broadband Services but **can work for other products**
- Features additionally operational messaging to support planned work and changes notifications.

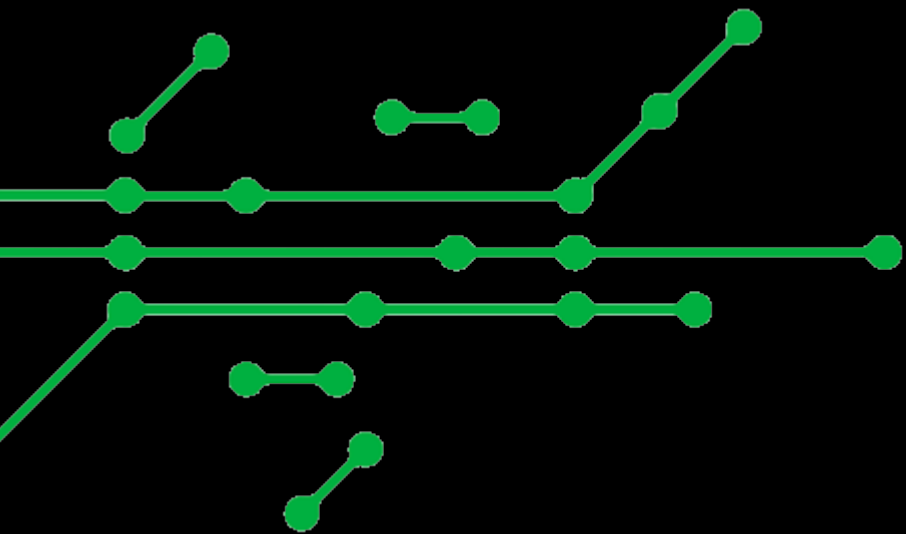
Non-functional capabilities

- Secure, scalable, cloud deployment on local Azure Region with HA
- Standardized Partners Onboarding (AB & NO)
- **Comes with rich documentation & tools:**
 - Specifications (LLD),
 - Developer Guides,
 - Dev-friendly Swagger files (enabling code generation),
 - **700+ Examples** (sunny & rainy) and testing guidelines
- Partners readiness testing & certification processes
- Operational & Developer Support

Summary

- **Fiberhub's Wholesale Platform is now Live**
- TM Forum Wholesale Broadband Standards are established
- The technology is there
- Heavy-lifting is done
- **Ready-made for other markets to adopt!**

Amartus is the technical delivery partner for the Solution, offering the Software + Expertise + Managed Services



Q&A

Thank *you.*

