Introduction

- Introducing the new License Platform for V93000 Tester

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Motivation and customer benefits

Motivation:

Advantest has put a new license application into operation from the 3rd party vendor Revenera, formerly
Flexera.

Customer benefits with the new license platform - technical perspective:

- Drastically reduced license management efforts for renewal & changes: automated online process or simple file handling on the HTTP level
- Once activated, contract licenses are automatically renewed with the annual renewal
- Self Service for license rehosting
- State of the Art tool with optimized GUI user-interface

Further customer benefits - commercial and operational points:

- Free off-charge migration; - lead and support from Advantest with a professional project team and
  established processes
- A double set of licenses during the migration transition phase facilitates a smooth transition and eliminates
  technical failures and risks to a great extent.

Terminology, technology, and a common approach

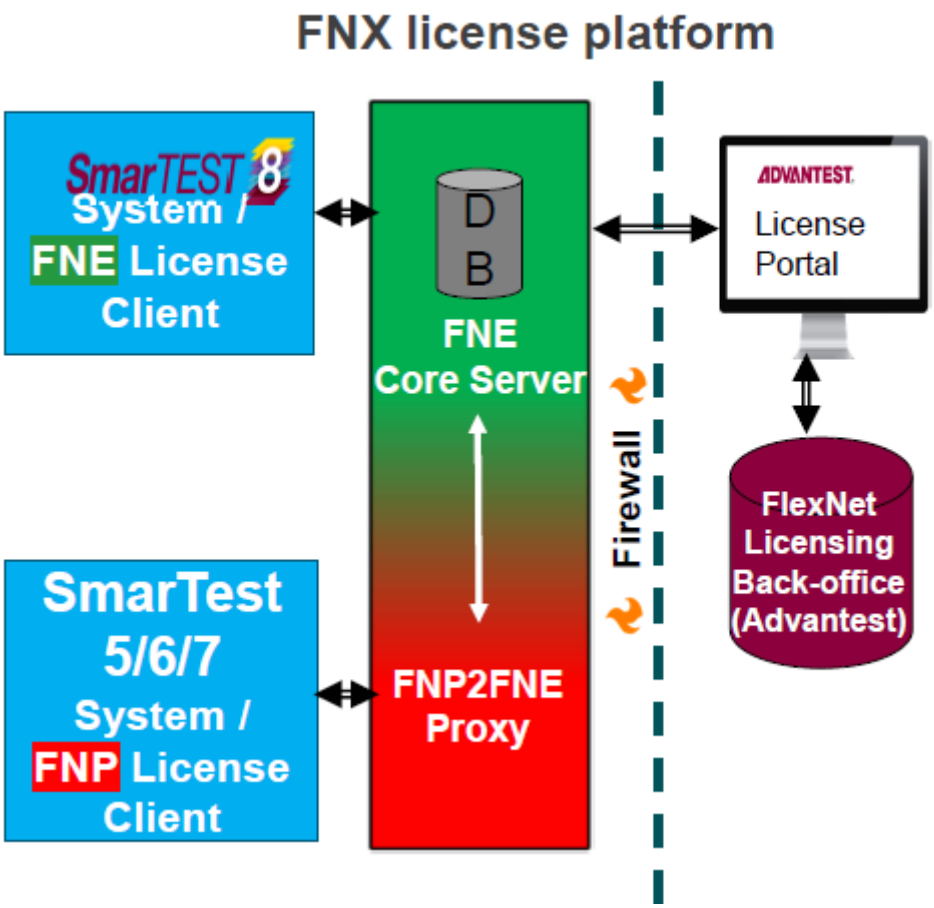
Terminology and technology differences:

- The currently installed legacy license platform is called '**FLEX NET PUBLISHER**' or **FNP**
- The new license platform is called '**FLEX NET EMBEDDED**' or **FNE**
- Difference: **FNE** and **FNP** license servers are entirely different tools. **FNE** uses regenerative (replacement) licensing, whereas **FNP** uses iterative licensing (via dynamic license pools).

Common approach:

- As for older client tester tools (Smartest versions <7.6), which are not migratable to **FNE**, a so-called **Proxy license platform** solution becomes necessary; the acronym hereto is **FNX**

- The Proxy license platform can handle all the Smartest releases from **FNE and FNP** license types; this ‘mixed’ or ‘hybrid’ approach is the most applicable customer solution. See the graphic on the right-hand side.



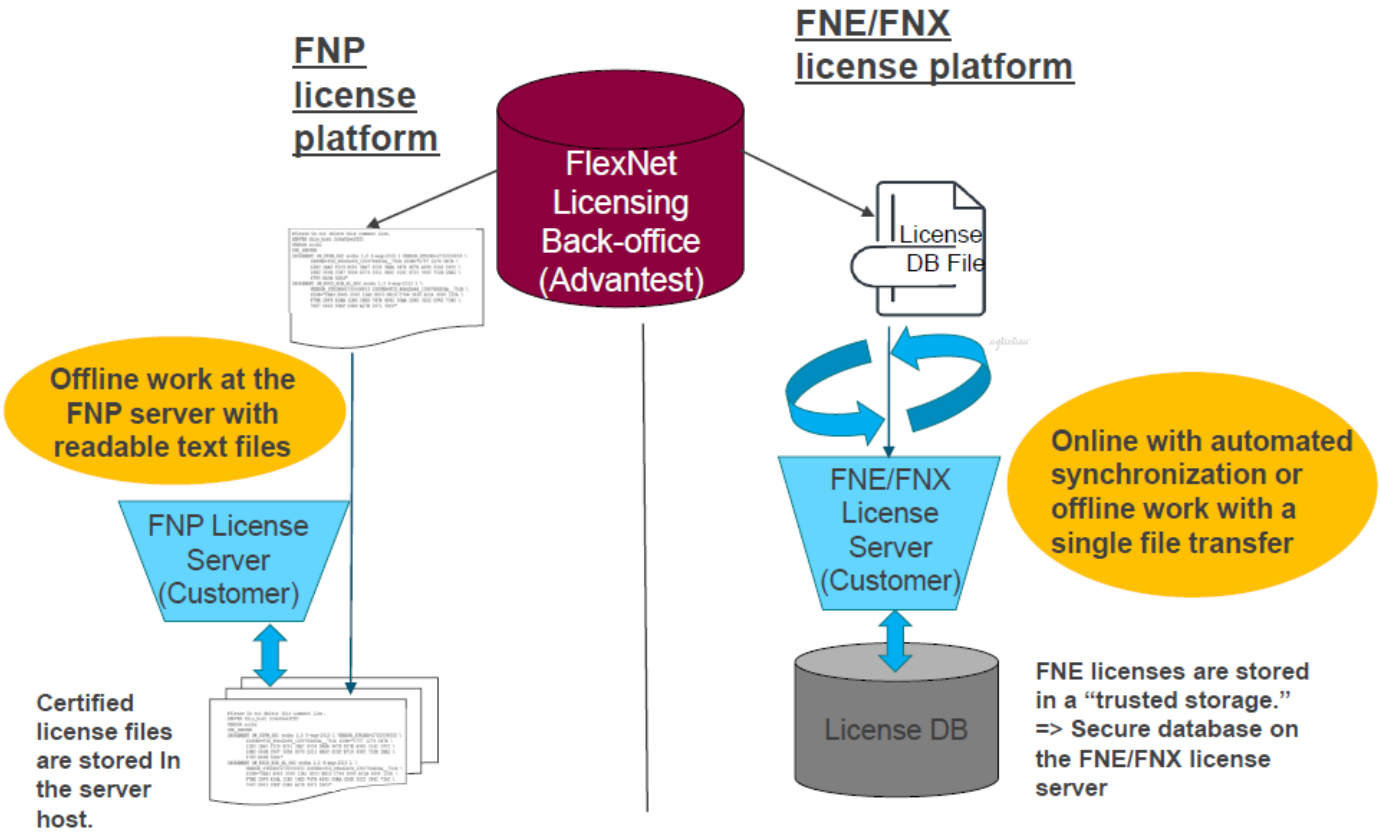
The Proxy Server efficiently converts the new license binary data format into the older binary data format for SmarTest 6/7 when a request is sent from the tester client.

Efficient License Management: Renewal & Changes

With FNE/FNX license management means:

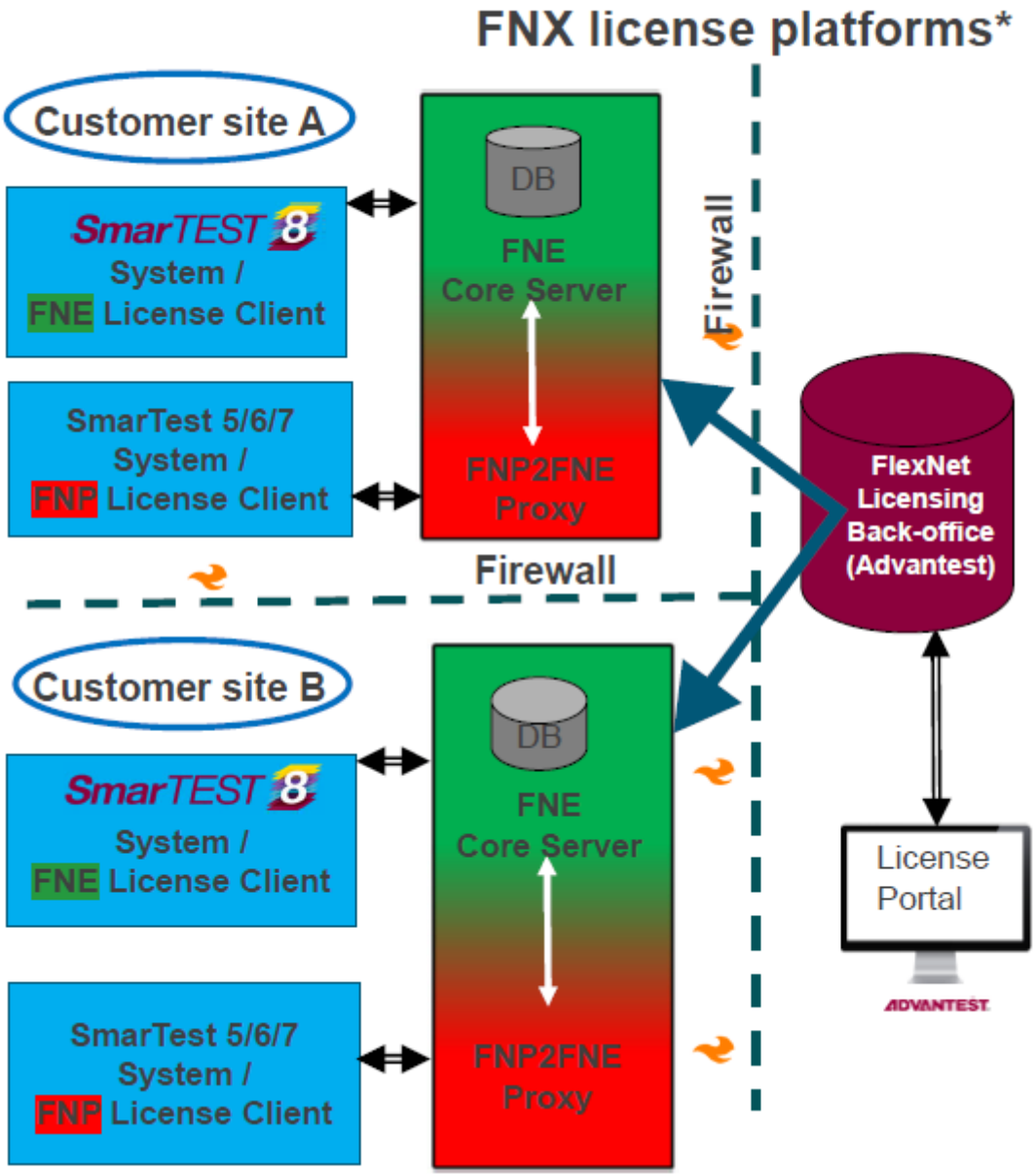
- With an online connection to Advantest’s back-office server, zero efforts for annual license renewal are necessary

- Without an online connection, all transfers from the back-office server will be done within a single file



Customer Self-rehosting 24x7

Customer self-rehosting of test tool licenses from site A to site B and vice versa
**also works for FNE platforms or in combination: FNX/FNE*

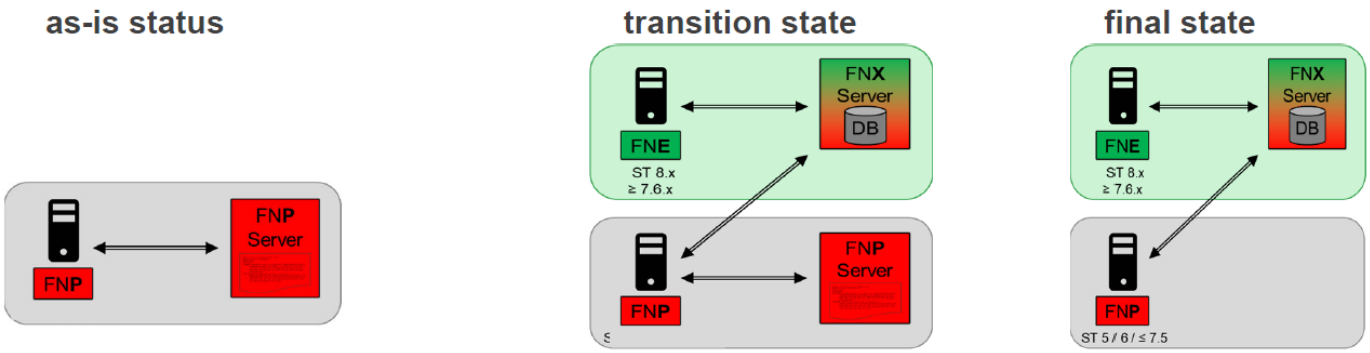


Overview - New features: FNP vs. FNE or FNX

	FNP	FNE
Technology	Revenera (aka Flexera) aging technology > no support on FNP from vendor Revenera	**The state-of-art technology** from Revenera (aka Flexera)
Format	**Multiple ASCII license files (incremental licensing)** > Inefficient license management (e.g. manual handling of license files)	Single binary license file / database container (regenerative licensing) > **Efficient license management**

	FNP	FNE
Annual renewal effort	**Required to clean up license duplicates** > mainly from rehosting of licenses **Manual effort every year** **Need to manage licenses on a single license file & entitlement level.**	**Significantly less effort** (simple server synchronization) **Zero effort with online connected FNE server** Allows to manage licenses on server-level **Once activated, contract licenses are automatically renewed with the annual renewal**
Rehost	**Rehosting of licenses only via "service ticket"** >Service charge fee needed	**Supports self-rehosting for customers 24x7**
Management	**No GUI tool for license management**	Provides state-of-the-art GUI based tools for efficient license management (FNE server viewer)
Stability	**License clients need to keep permanent connection with Server**	**Increased robustness** **> More suitable for global license server set-ups and cloud licensing**
SmarTest Support	**SmarTest 5/6/7/8** No support for EXA Scale No support for SmarTest 8 Device Specific Licensing and Cloud Licensing	**SmartTest 5/6/7/8, all V93000, all license models** > FNE is fully backwards compatible with all existing SmarTest 5/6/7 releases via FNX server (FNE + FNP2FNE Proxy Server) > supports all V93000 generations > supports Device Specific Licensing and Cloud Licensing > **Required for EXA Scale and for advanced license models** (device specific licensing & cloud licensing)

High-level Migration Sample



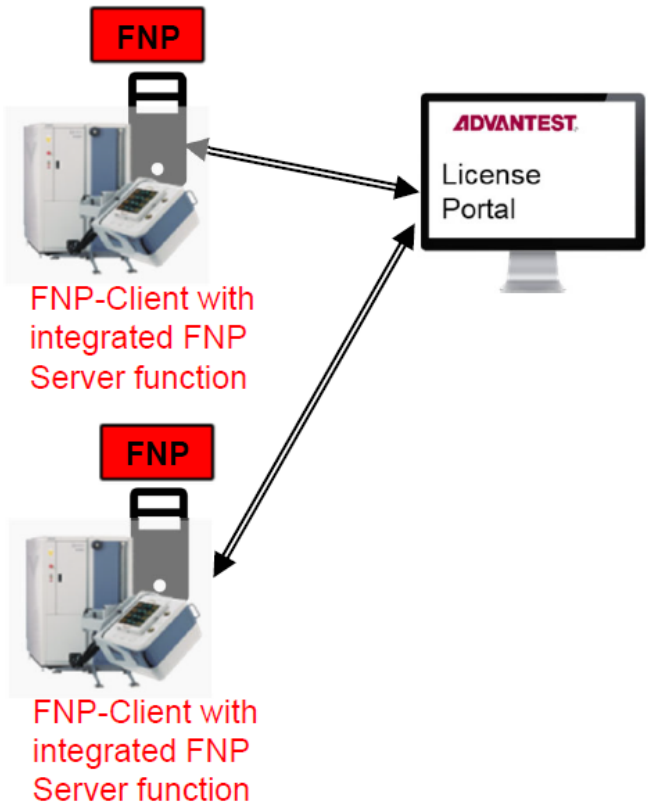
Critical points for migrations:

- For production migration without interruption, a new set of Servers / or virtual machines is required; - or at least for a workaround, a temporary Server set
- For the Customer, an individual new or new server architecture solution will be proposed by Advantest experts, derived from the as-is architecture, i.e.(single Server vs. failover, online vs. offline, new **FNE** vs. **FNX** Server; - f*or more details, see next slide*
- Selective existing licenses need to be migrated from **FNP** to **FNE** format
- With the parallel migration approach, a smooth switchover of individual tester clients is possible

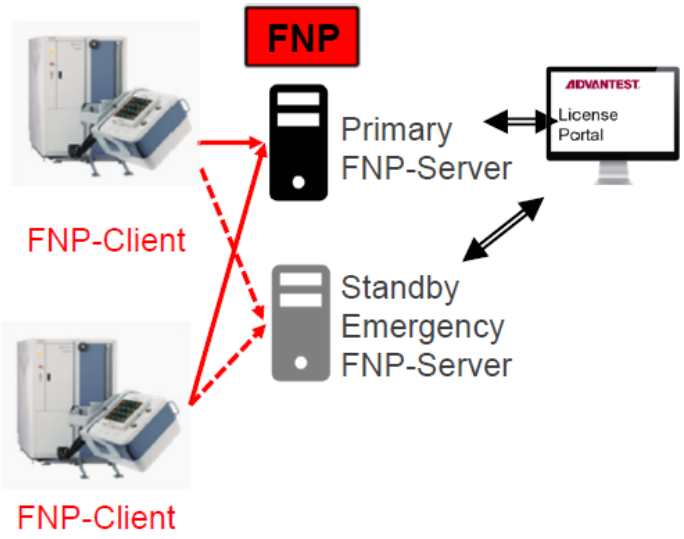
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As-is architecture cases

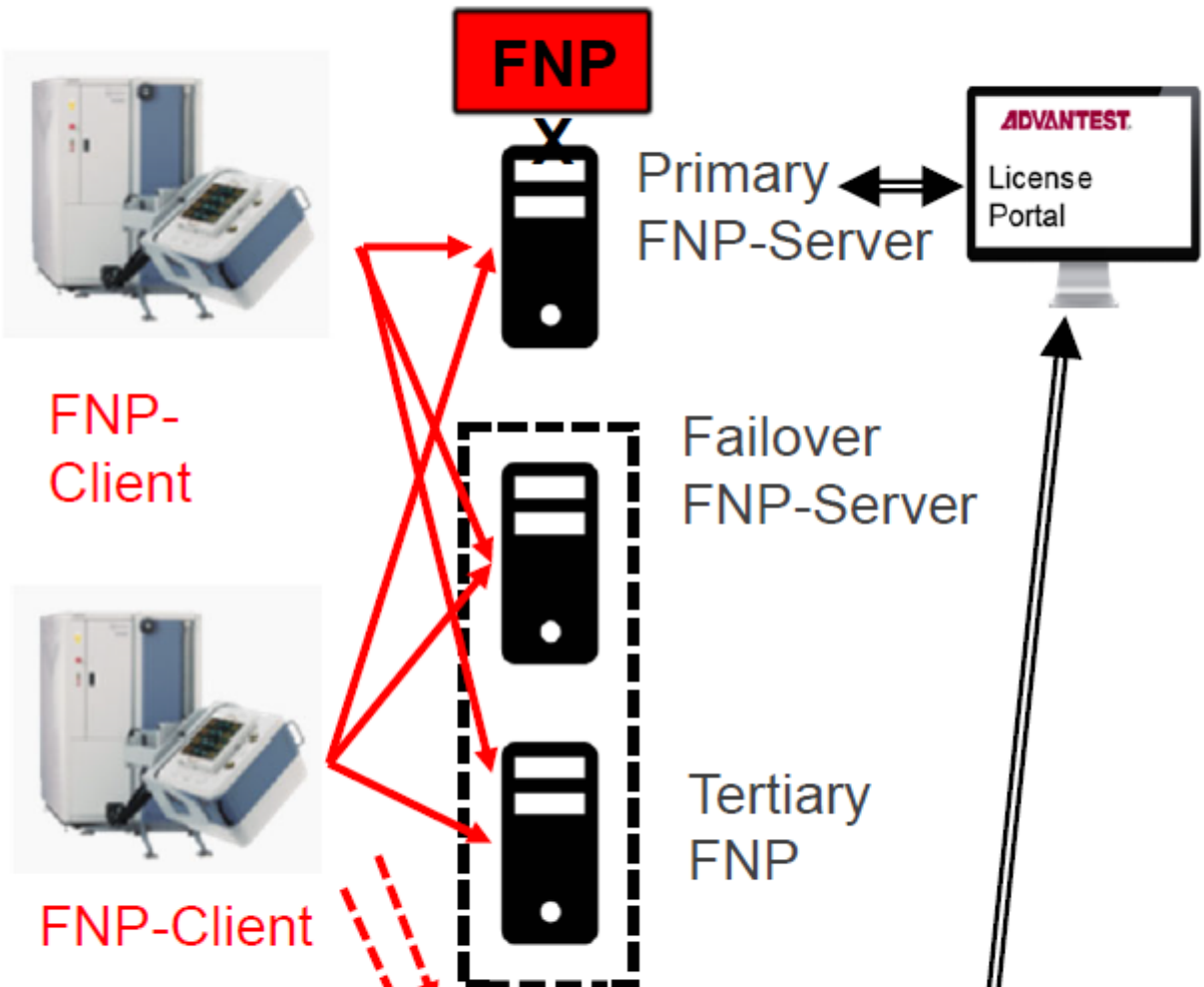
Case A) FNP individual in each client



Case B) FNP non-redundant + mandatory emergency server

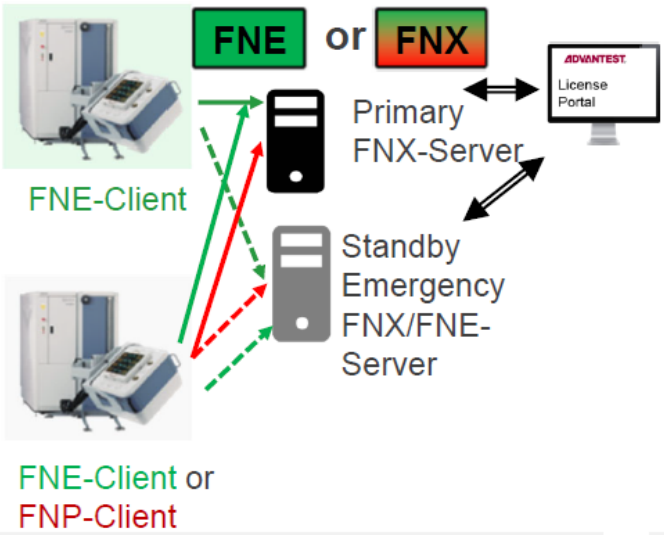


Case C) FNP redundant + mandatory emergency server



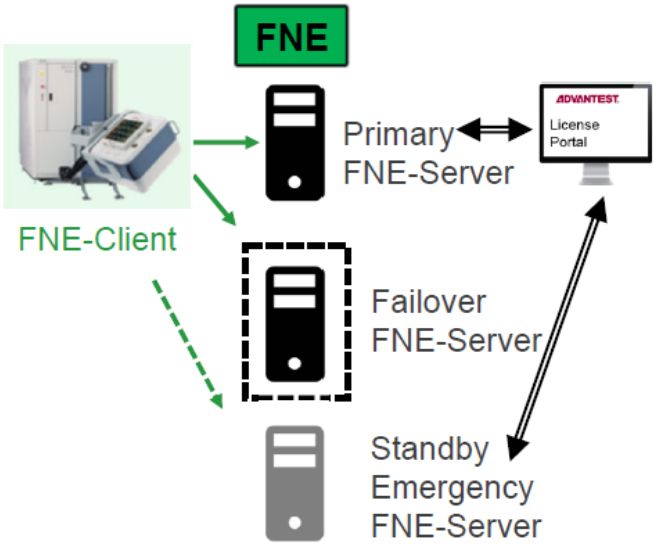
Target Architecture Options: FNE or FNX

Option A.1 FNE or A.2 FNX, non-redundant solution + mandatory emergency server

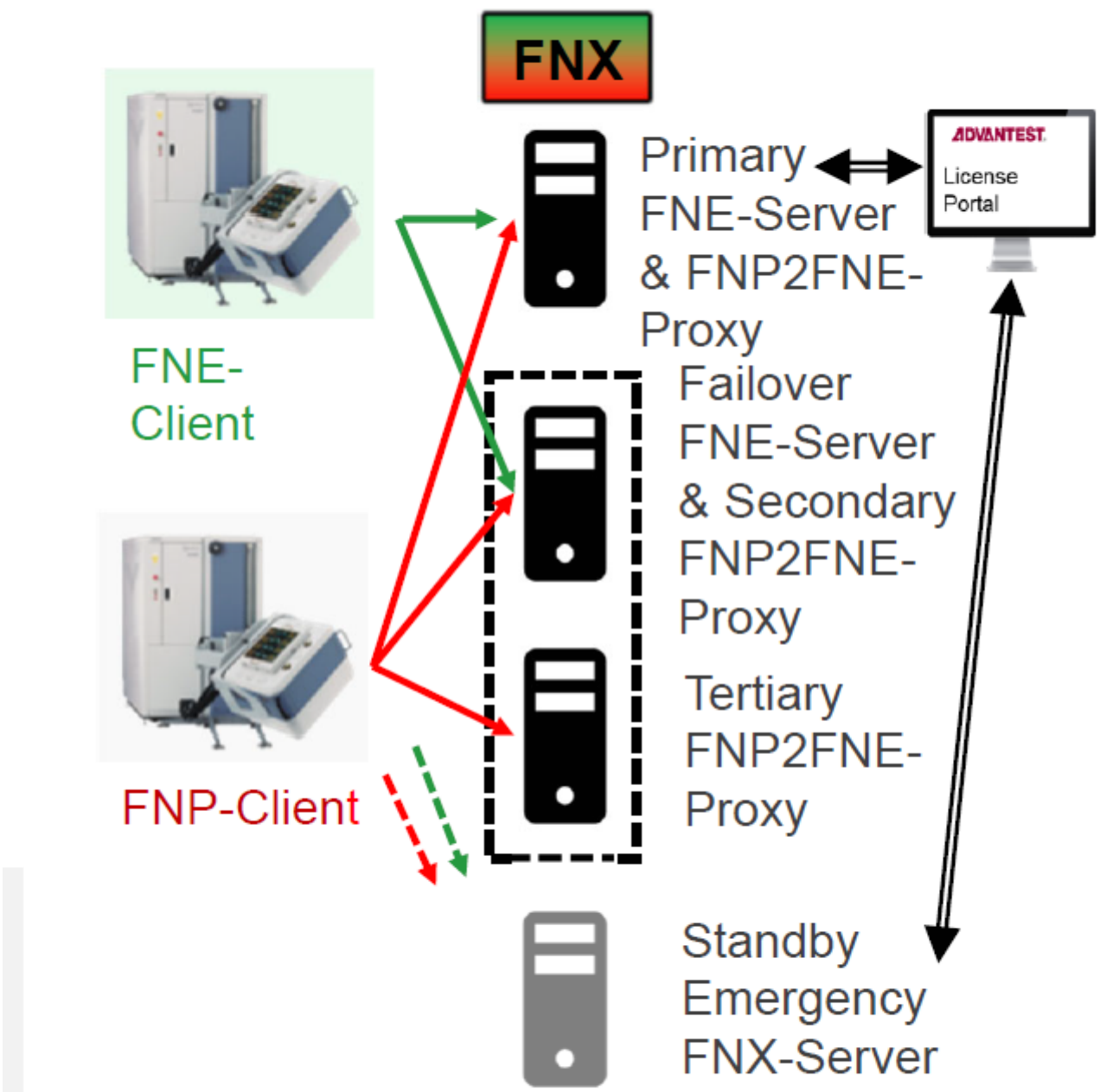


A standby emergency FNE / FNX server can get a self-service emergency license (a 1:1 copy of the failing primary server) installed via the license portal on demand (typically done within 5 min). Recommended as an easy maintainable backup solution for production sites.

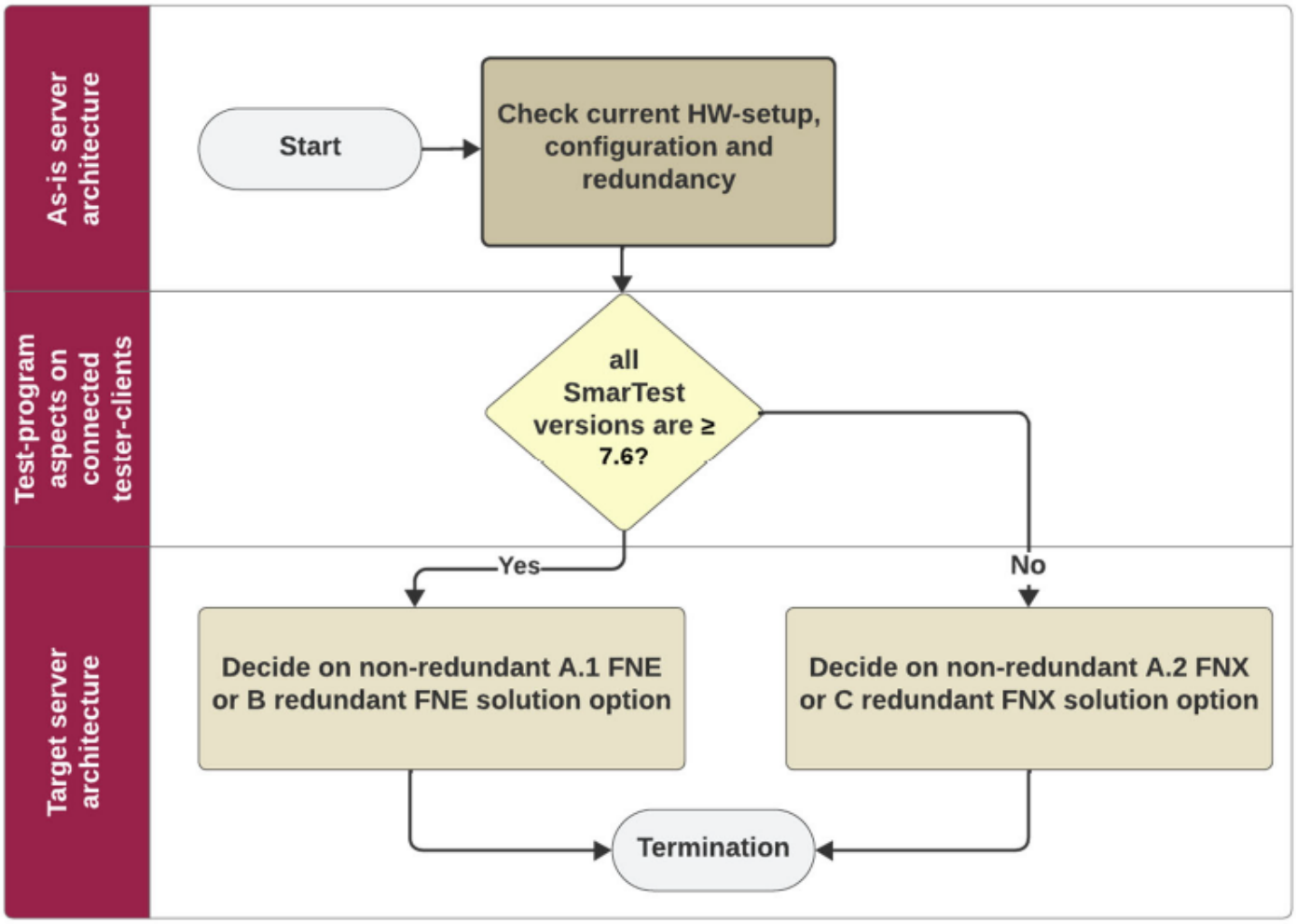
Option B) Redundant FNE solution mandatory emergency server



A real-time failover set-up for a native FNE implementation requires two servers. For FNX, three servers are required to accommodate the FNP triad for the FNP2FNE-Proxy servers. Recommended as an automated backup solution for large production sites, preferably with an additional standby emergency server.



Migration Decision Path



Migration Option-Matrix

As-is architecture cases: *(see slide 10)*	Precondition fulfilled that all SmarTest versions are ≥ 7.6	Target architecture solution options: - *(see slide 11)* A.1 or A.2 or B or C	Applicability: - Possible - Not possible - Not recommended	Comments
Any case: A, B, or C	Yes	A.1: Non-redundant FNE	Possible	Advantest requests an emergency server for all target architectures.
	Yes	A.2: Non-redundant FNX	Not recommended	
	Yes	B: Redundant FNE	Possible	
	Yes	C: Redundant FNX	Not recommended	
	No	A.1: Non-redundant FNE	Not possible	
	No	A.2: Non-redundant FNX	Possible	
	No	B: Redundant FNE	Not possible	
	No	C: Redundant FNX	Possible	

Migration Chart

1. Solution Engagement, Timeline Proposal and Customer Timeline Commitment

- Advantest presents migration motivation with technical guidelines
- Advantest proposes project timeline
- Customer gives feedback on a suitable/agreed timeline

2. As-is architecture identification and Target architecture determination

- Customer checks its current setup, configuration, and SmarTest versions
- Customer decides on its target solution and communicates it to Advantest

3. Provisioning new HW and Configuration

- Customer sets up required HW and network configuration and confirms its readiness
- Customer downloads and installs new License Server Application SW
- And does a 1st. registration at Advantest’s Portal, where he receives a 1st dummy license for testing
- Customer fills out license data migration form and provides it to Advantest

4. Provisioning new License Database

- Advantest runs the license data migration process, and parse data to safeguard error-free database

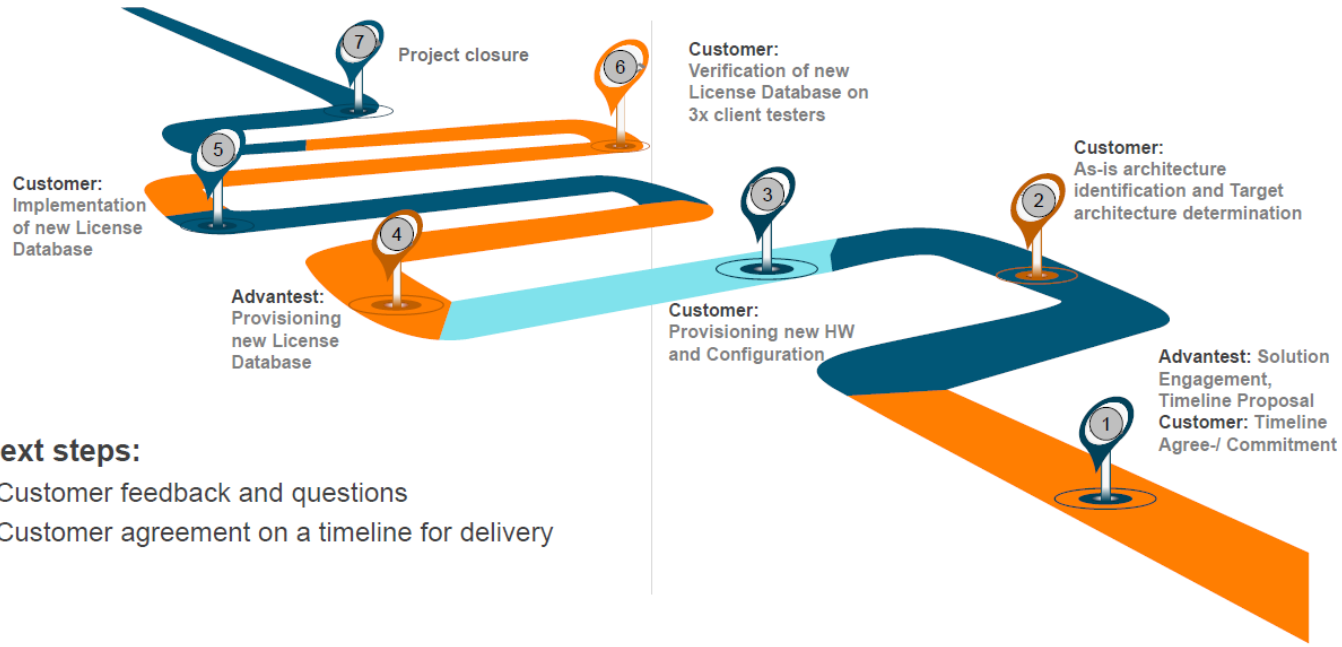
5. Implementation of new License Database

- Customer loads new License database into target systems
- And does, in case of an error, an exception handling with Advantest support

6. Verification

- Customer runs a new Configuration File for FNE or FNX tester clients
- And checks the functioning of the new setup

Migration Roadmap, Milestones, and Next steps



FNE/FNX license server requirements

Hardware minimum configuration:

- **Quad core CPU, 8 GB RAM**
- **Free hard disk space**
  o Primary & Failover FNX Server: 12GB (FNE) + 12GB (FNX/FNP)
  o Tertiary FNP Server (incl. FNP2FNE proxy software): neglectable (< 100MB)
  o Local license server with FNE/FNX on system controller as Hypervisor / VM set-up: 5GB (FNE) + 5GB
  (FNX/FNP)

Operating system minimum configuration:

- Red Hat Linux 7.2 or newer
- Root access for installation
- Java 8

- License server must use fully qualified hostname (command hostname -f must not return localhost)

Tester Controllers suitable for local license servers:

- Z4 G4, Z640, Z620

FNE/FNX Network Settings

FNE / FNX server:	**Port**	**Protocol**
FNE core server (for ST8.x / 7.6.x FNE clients):	7070	HTTP
FNP2FNE proxy (for ST 5 / 6 / ≤ 7.5 FNP clients):	27000, 27020, 27019	TCP
FNE server viewer:		
Online Connection to Advantest's License Portal (license.advantest.com):	7077	HTTP
-> enables online connection for fully automated renewal	443	HTTP

Project Status

License Migration Sample

Phase	**Project phase**	**Lead**	**Period**
1	-**Solution Engagement & Timeline Proposal** -**Timeline Agree- & Commitment**	-Advantest -Customer	-1day -7days
2	**As-is architecture identification and Target**	Customer	2 weeks

3	**Provisioning new HW and Configuration**	Customer	1 month
4	**Provisioning new HW and Configuration**	Advantest	3 days
5	**Implementation of new License Database**	Customer‘s representative name	2 weeks
6	**Verification of new License Database on 3x client testers**	Customer‘s representative name	2 weeks
7	**Project Closure**	Advantest/Customer‘s representative name	1 week

Project Status Summary: Sample

