



Eilat, 11/2017

Cost Effective switchgear Modernization solutions

Asset upgrade

- Today's situation
 - Aging of install base.
 - Demands for Health & Safety Standards.
 - Demands for improve quality of supply.
 - Lose of experience skills.
 - Trend towards higher energy demands.
 - How to manage install base in terms of investments.



LCM Phases summary:

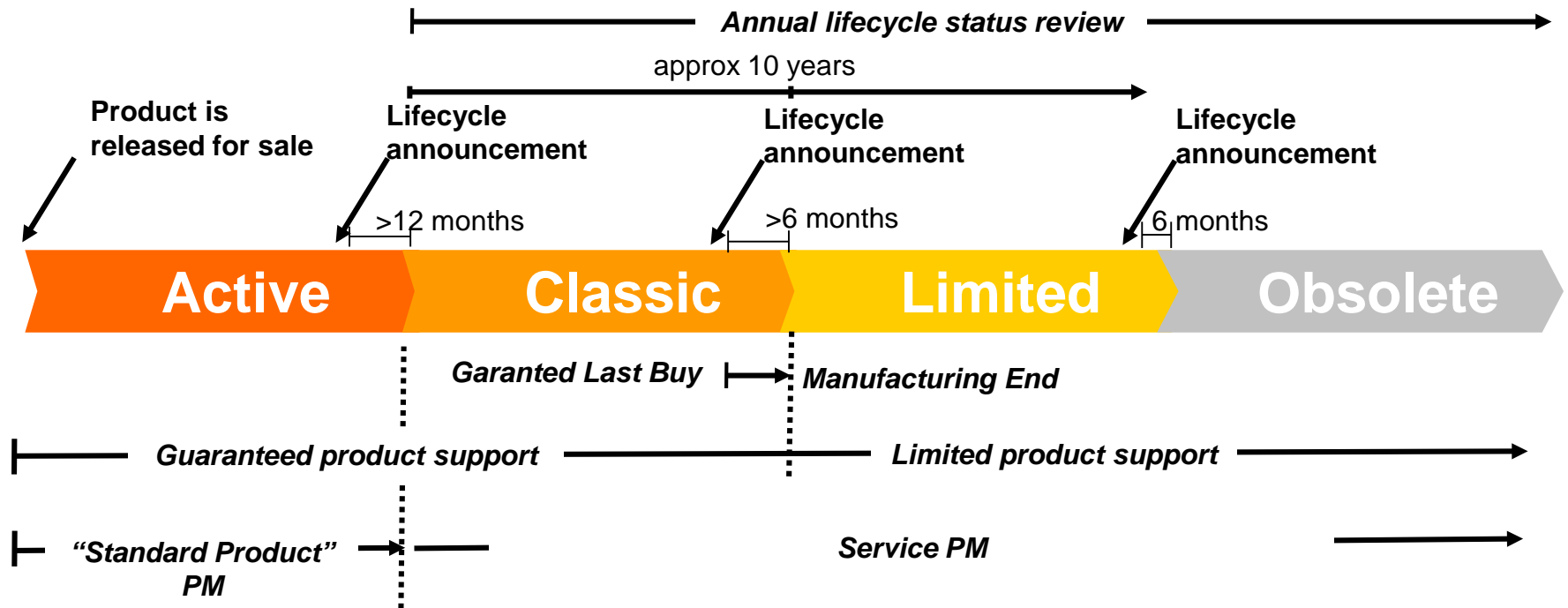


ABB has divided the manufactured products into four phases:

- Active** = standard development, production and sale.
- Classic** = maintenance phase of the product: availability is guaranteed for replacing in existing plants.
- Limited** = spare parts are available. The production of the CB's whole range is not guaranteed and the technical support is limited.
- Obsolete** = technical support is no more guaranteed. The production of the CB's whole range has ended but spare parts might be available. Retrofit solutions are available.

■PPMV

Life cycle policy – Active phase

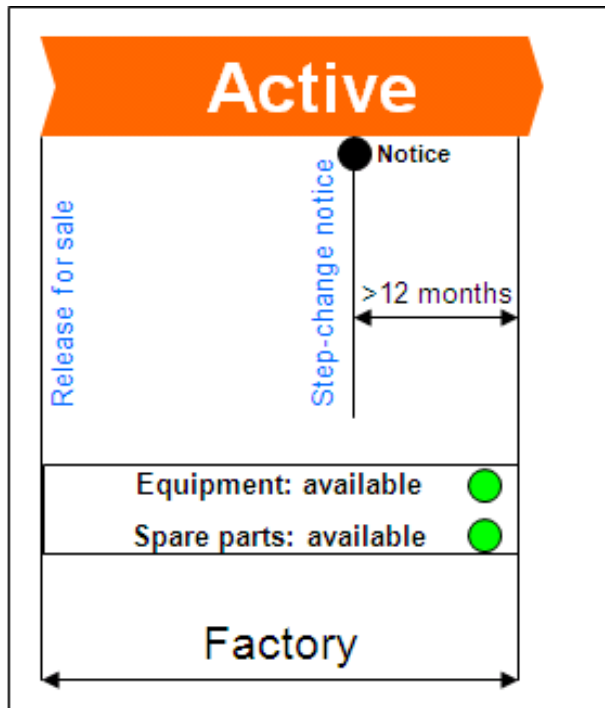


Figure 3

- Product released for sale
- In full manufacture by factory
- Actively promoted in assigned markets
- Available to all customers
- Fully supported both technically and via after sales network
- Periodically enhanced through R&D or product improvements

PPMV

Life cycle policy– Classic phase

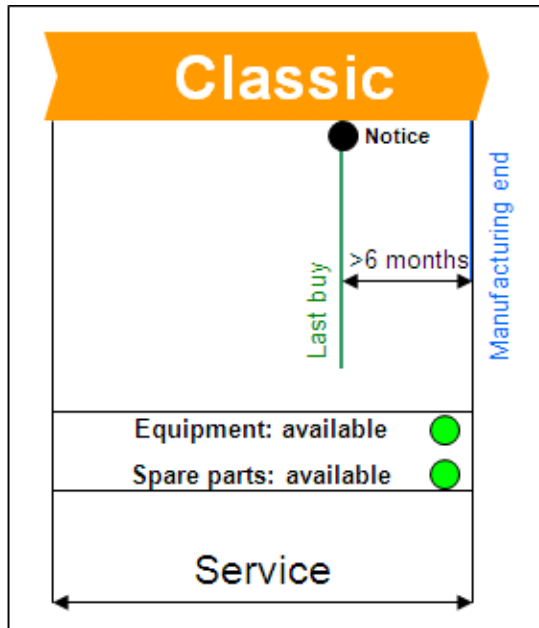


Figure 4

▪ A product becomes CLASSIC when the BU makes a decision to remove the product from active sales for new installations or modernization projects.

- Product is no longer promoted by the sales force
- Product has started its step-change process
- Product still available for sale - mainly for expansions of existing systems, supply
 - under frame agreements, in the case of space
 - constrains, required functionality not yet covered
 - by the new product, license agreements
- Price increase (e.g. due to lower volume, vendor component costs, etc.)
- No further enhancements and developments
- Production continues generally in the factory (acting as Service sub-supplier) or
 - at Service workshop or by an external partner.

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Life cycle policy – Limited phase

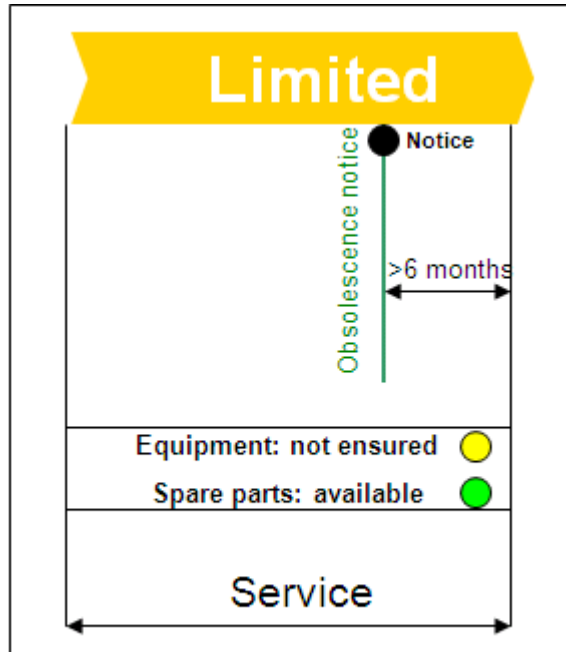


Figure 5

- A product enters the LIMITED phase after
- MANUFACTURING END.
- Product is withdrawn from sale and no longer promoted by the sales force
- Retrofit and Service support continues through the responsible hub but may diminish over time with decreasing installed base
- Price increase (e.g. due to lower volume, vendor component costs, etc.)
- There are no further R&D or design activities on the product
- Product is no longer manufactured. Very limited and selected production might be done at Service workshop or by an external partner.

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Life cycle policy– Obsolete phase

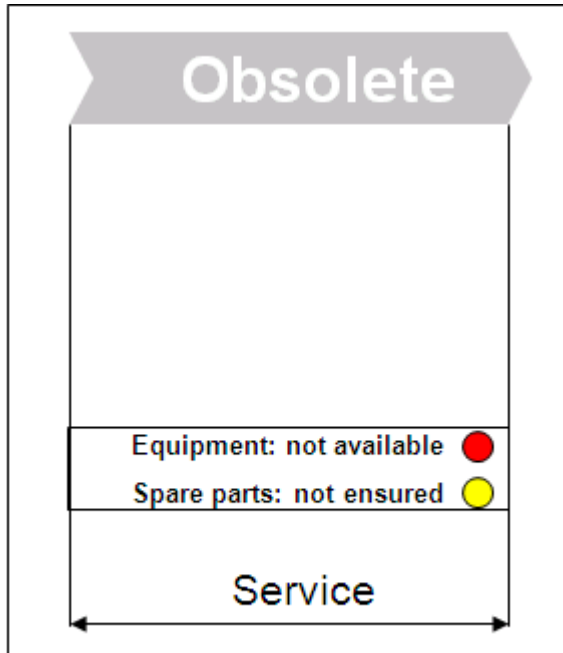
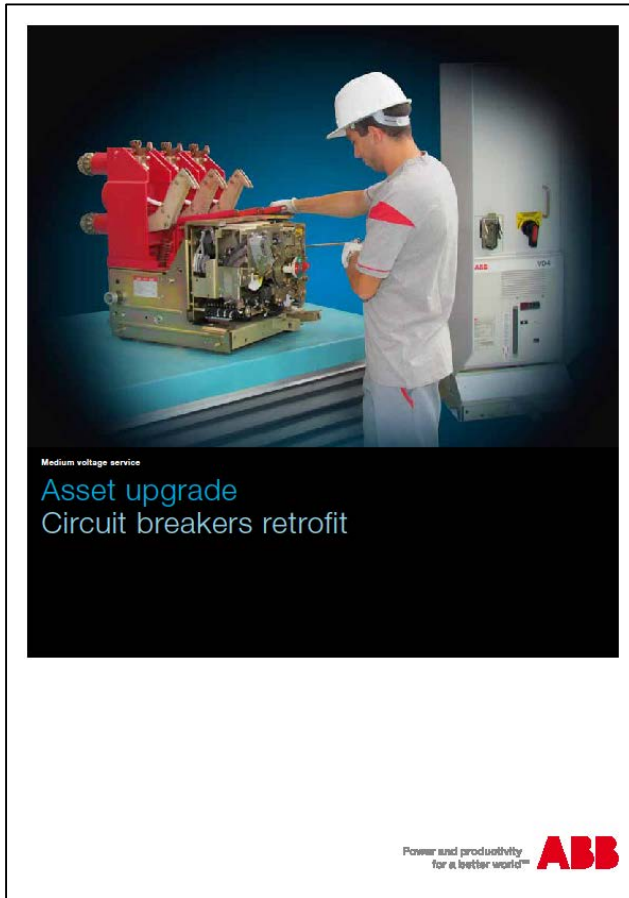


Figure 6

- Product withdrawn from sales
- Product is generally no longer owned by ABB due to disinvestments (exceptions may occur when containing technology also used in active products).
- Manufacturing capability is no longer possible
- No longer manufactured as a complete product;
 - only component spares and retrofit solutions
 - available
- A notice will be sent to all sales channels at least 6months prior to the start of the OBSOLETE phase.

Retrofit Overview



Phased-out devices replacement



Mechanical and electrical
adaptation design



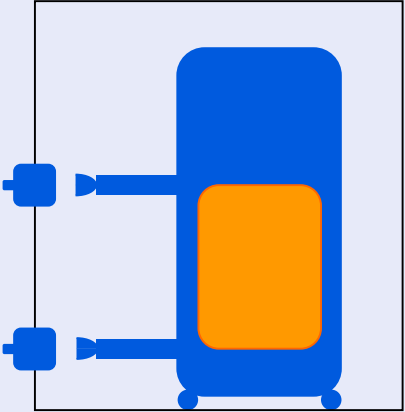
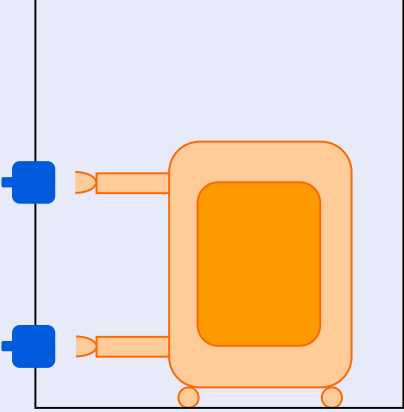
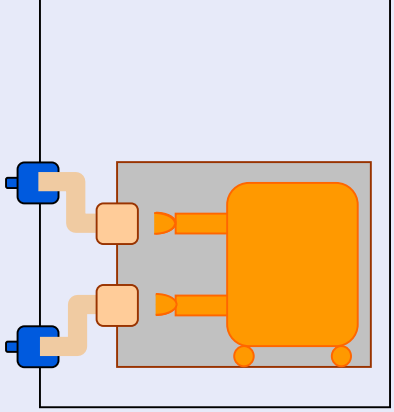
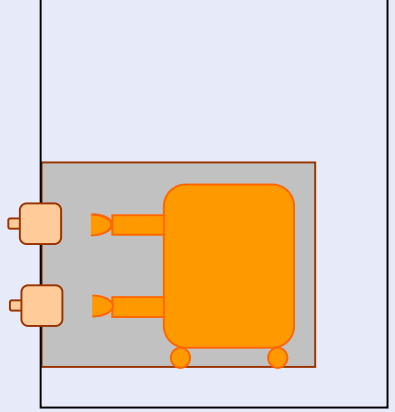
Current production apparatus

Benefits

- *cost-effective modernization solution*
- *increase on reliability and safety*
- *maintenance and performances improvement*

Retrofit

Technical solutions

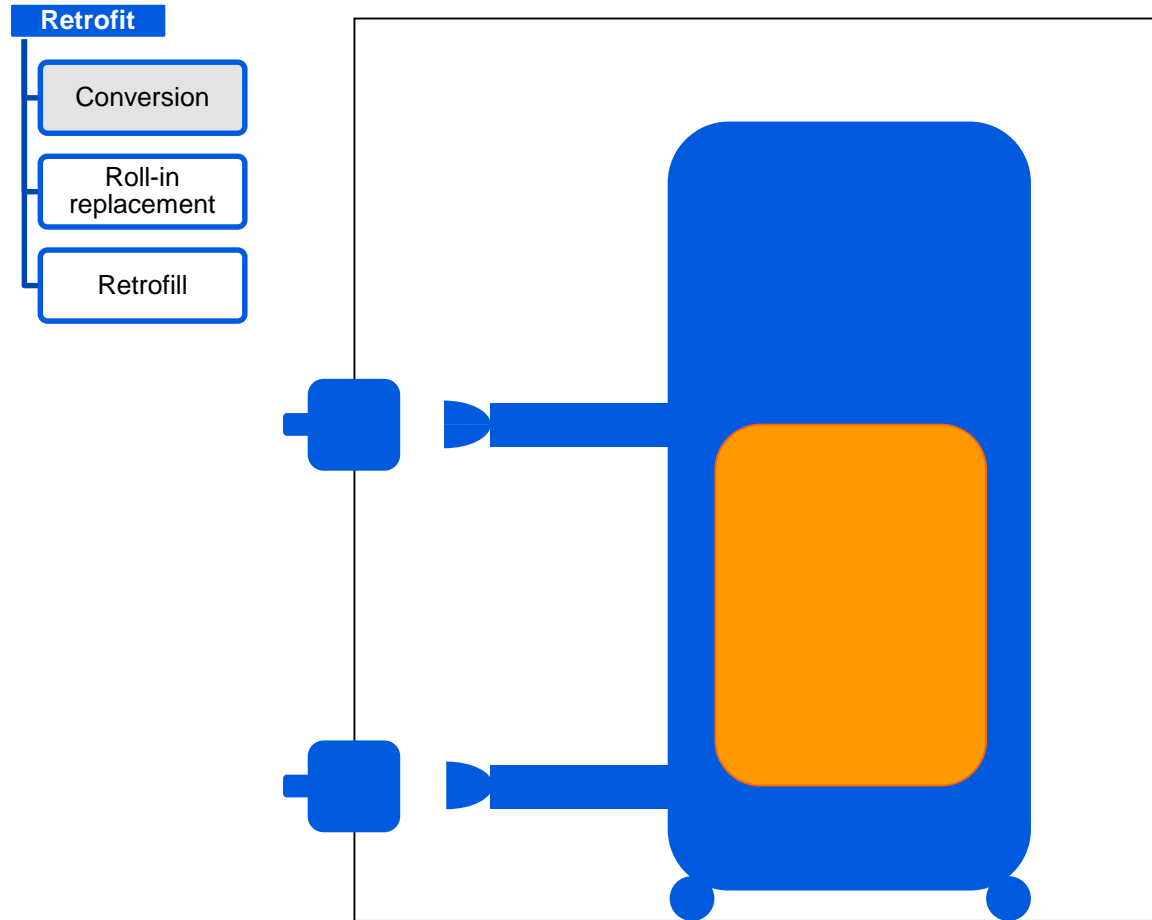
Conversion	Roll-in replacement	Retrofit	
		Hard-bus retrofit	Cradle-in cradle
			
Interchangeable with...			
original apparatus		new equipment	

■ Original components
 ■ New device
 ■ Adaptation system
 ■ New frame/cassette



Technical solutions

Conversion



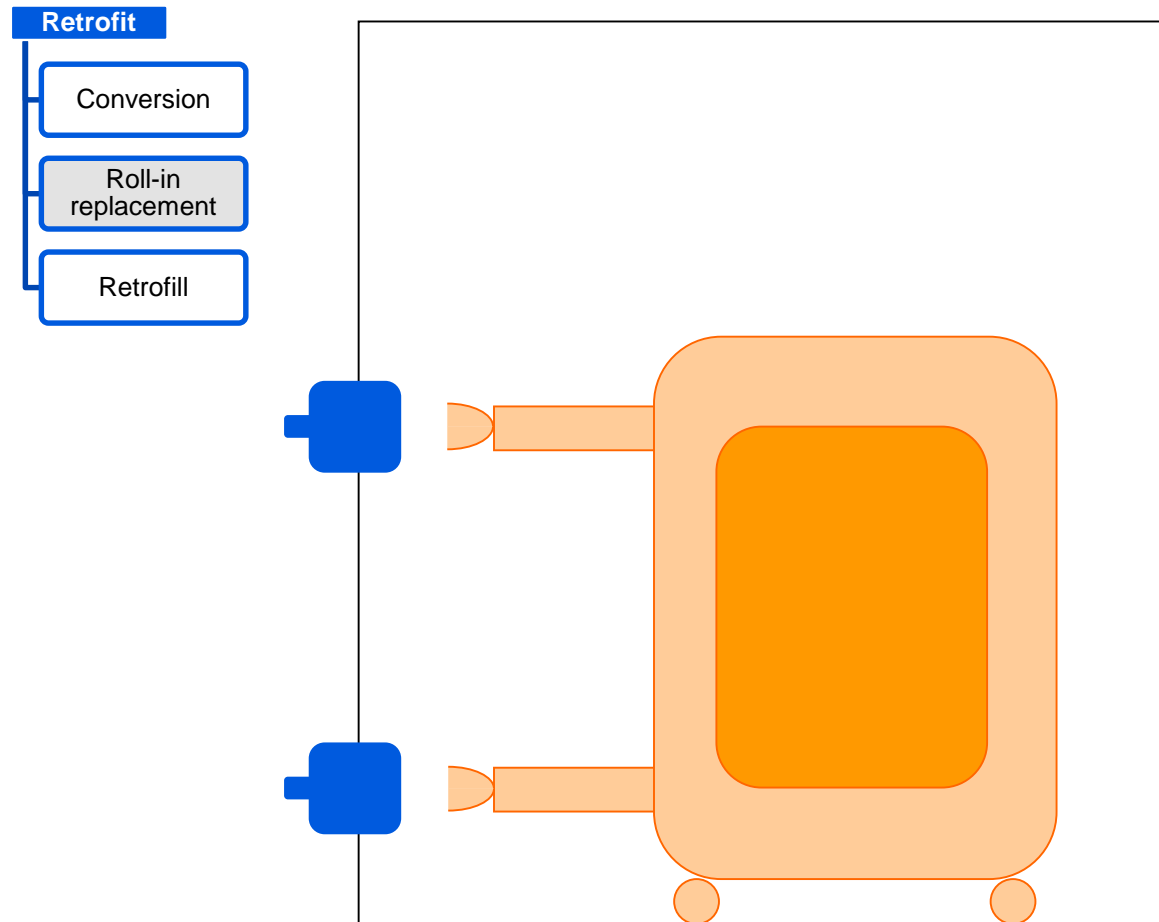
- Existing truck and some parts re-used
- New apparatus

Features

- Cost effective solution
- Inspection and testing activities needed
- Manufacturing and logistic constraints

Technical solutions

Roll-in replacement



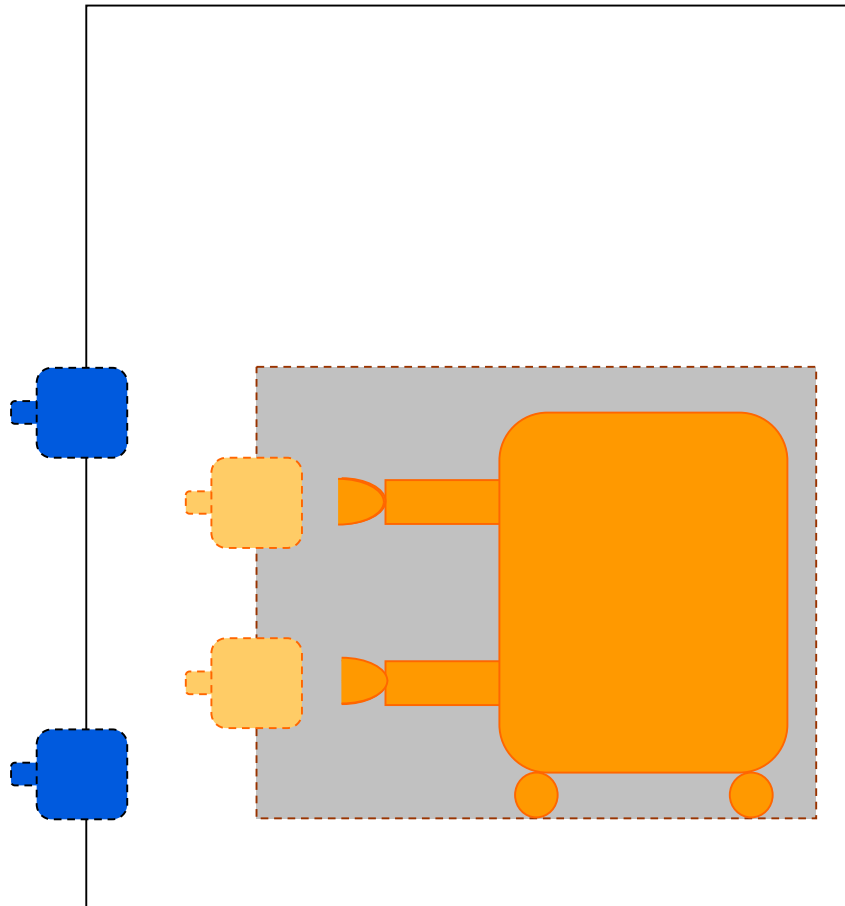
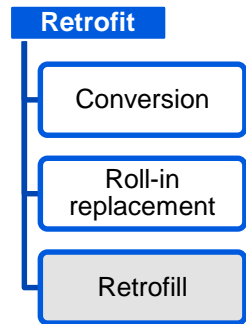
- Original parts
- Adaptation system
- New device

Features

- Significant modifications to the switchgear are not required
- Reduced downtime
- Higher performances and additional features

Technical solutions

Retrofill



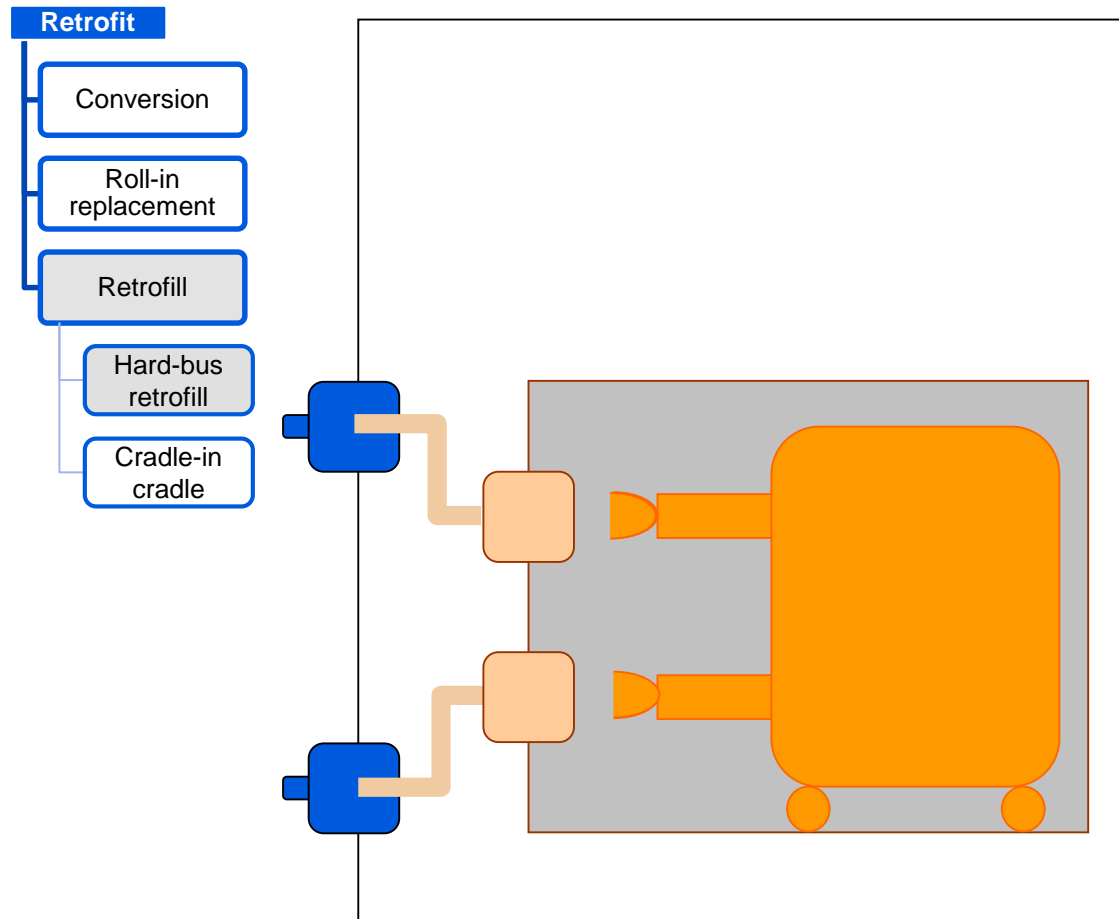
- Original parts
- New frame/cassette
- New device
- Adaptation system

Features

- Renew of the main functional components of the original switchgear
- Suggested solution when shutters and interlocks are in bad condition
- Significant site work needed

Technical solutions

Hard-bus retrofill



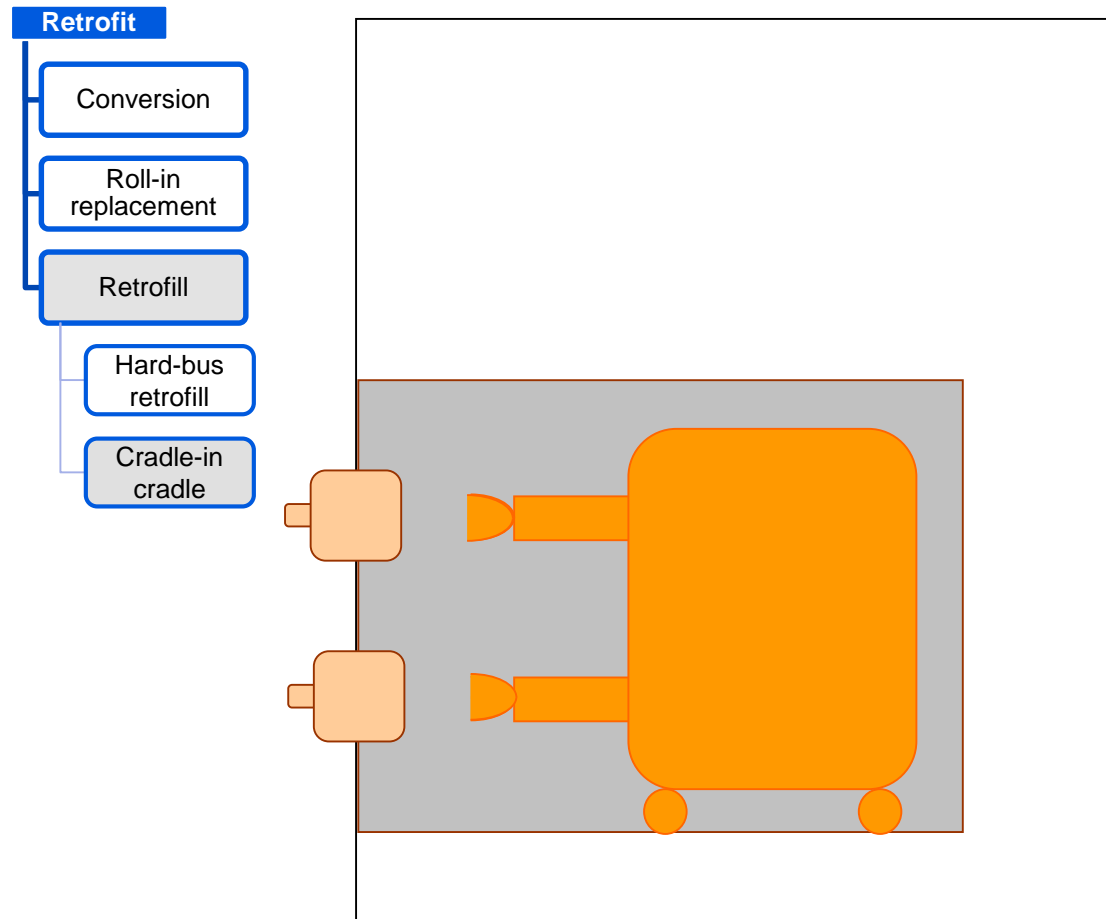
- Original parts
- New frame
- New device
- Adaptation system

Features

- A new frame hosts a standard apparatus
- An additional power circuit makes the connection
- Existing bushings generally remain in place

Technical solutions

Cradle-in-cradle



- New cassette
- New device
- Adaptation system

Features

- A new cassette hosts a standard apparatus
- Inner and outer interfaces are included
- Existing bushings are generally replaced

OneFit

The latest ABB hard-bus retrofill



ABB solution for upgrading
non-ABB installed base

ABB technology added value

ABB integrally safe plug-in
design

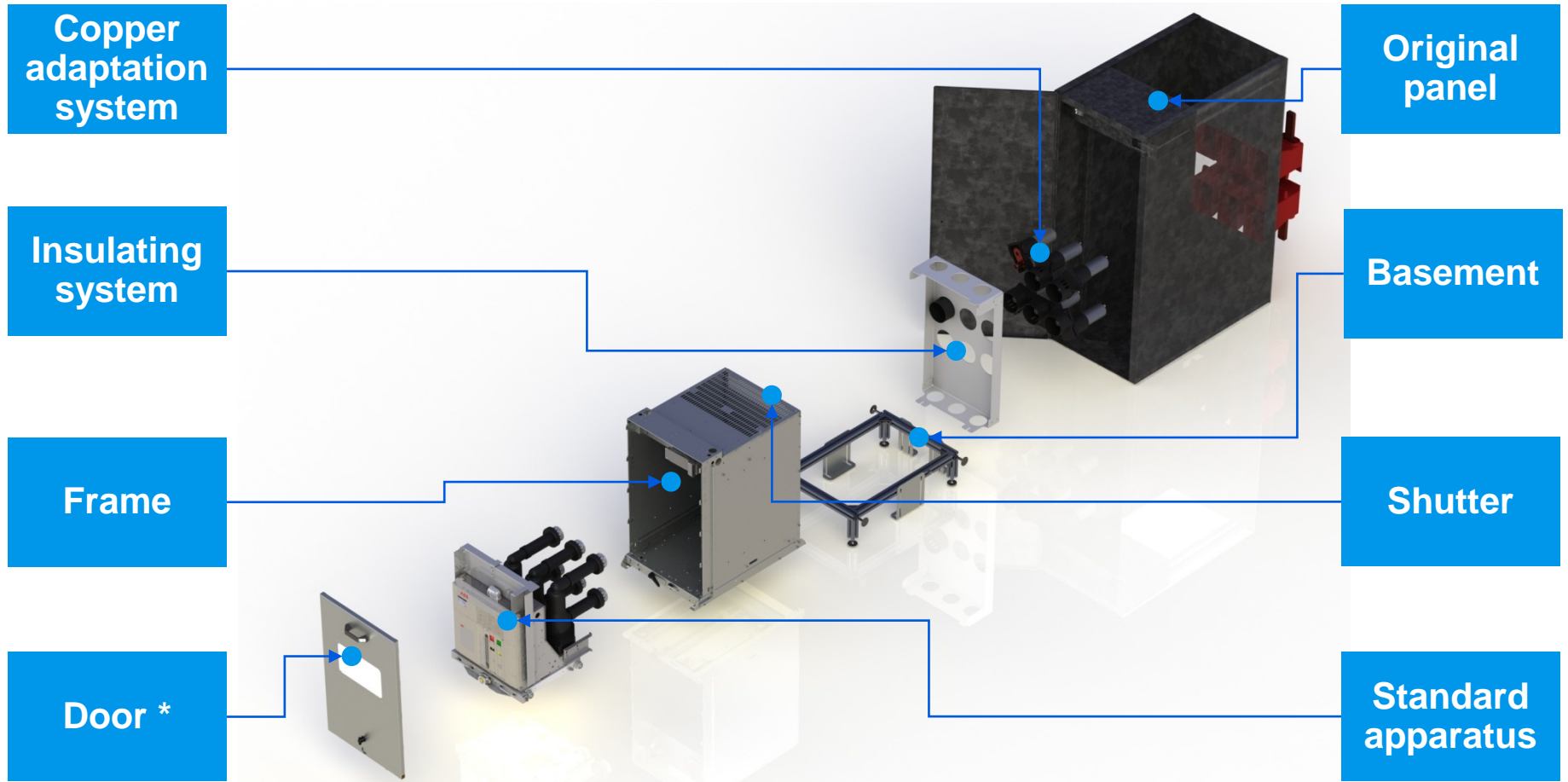


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works since 1945 Shlomo Group

OneFit

Design concept



* On request

Ready to go Optimized solution

Application example n. 1



Safety upgrade due to embedded interlocking system with new shutter

Improved dielectric properties due to new integrated insulation design

Type tested solution according to latest IEC 62271 -1 and 100 Standards

Design compliance with all circuit breakers type and fused contactors

Ready to go Apparatus range

Benefit of the widest apparatus range



HD4, VD4, eVD4, VM1, VSC



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Ready to go

Extended features

Application example n. 2



Inducted voltage injuries avoided due to closed door racking

Arc fault operator effects prevented by the remote motor operated racking system

Switchgear revamping with the use of eVD4 circuit breaker integrating protection relay and measuring sensors

Ready to go

Link to the future



Interchangeable equipment with new extension panels and additional switchgear

Reusable apparatus in replacement switchgear

afcon
manufacturer

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- **Thank you ...**