

Changes to the documentation, version 3.0	4
Foreword	5
1. Abstract	6
2. Design Principles.....	6
3. Platform Architecture.....	7
3.1 Containerized Deployment Model	7
Key architectural components:	7
Benefits.....	7
3.2 Core Platform Layer.....	8
4. Module Architecture	9
4.1 PILOTAGE – Operational Control Layer	9
Functional Characteristics	9
Architectural Role.....	9
It serves as:.....	9
4.2 SAP MONI – SAP Data Framework	10
4.2.1 Architectural Characteristics	10
4.2.2 Data Acquisition Model	11
4.2.3 Monitoring Scope	11
4.3 DB Optimizer (DBO) – Execution & Optimization Engine.....	12
4.3.1 Design Concept.....	12
4.3.2 Execution Model.....	12
4.3.3 AI-Readiness	13
4.4 AI Module – Intelligent Analysis Layer	14
4.4.1 Data Processing Architecture	15
4.4.2 Multi-NMS Integration	16
4.4.3 Agentic AI integrated into E(i)xM	17
4.4.4 Strategic Role.....	17
4.5 Project Management & Reporting Modules	18
4.5.1 AgileBoards – Project & Team Architecture Layer	18



LVI AG
 Amriswilerstr.41
 CH 8570 Weinfelden
 www.lvi-ag.ch

4.5.2 TimeKeeping & Scheduler – Resource Coordination Layer	20
4.5.3 Customer / Creditor / Debitor Reports – Commercial Data Layer	21
4.6 Inventory & Ticket Integration – Asset Intelligence & ITSM Orchestration Layer	22
4.6.1 Architectural Position	23
4.6.2 Core Architectural Responsibilities	23
4.6.3 Inventory Synchronization Architecture	24
4.6.4 Inventory Data Model	25
4.6.5 Data Aggregation & Retention Architecture	25
4.6.6 Change Detection & Status Classification Engine.....	26
4.6.7 Ticket Ingestion & Lifecycle Management	28
4.6.8 SLA & Resolution Tracking Model	29
4.6.9 Integration with Organizational Governance.....	29
4.6.10 AI-Agentic & Predictive Enablement	31
4.6.11 Discovery & Topology Integration.....	32
4.6.12 Architectural Summary.....	32
5. Integrated Data Flow	33
5.1 Logical Data Chain	33
5.2 Cross-Domain Scenario Example.....	33
5.3 Extended Enterprise Data Chain.....	34
6. Security & Governance.....	35
7. Deployment & Scalability	36
7.1 Deployment Options	36
7.2 Scalability.....	36
7.3 Edition Differentiation.....	36
8. Differentiation from Classical Monitoring.....	37
9. Strategic Technical Outlook.....	38
10. Conclusion	39
Appendix.....	40
Integrated enterprise workload automation and orchestration platform	40
Ticket Workflow	41



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

E(i)xM Service Management Capability	42
E(i)xM Asset Management Workflow	43
E(i)xM Inventory data.....	44



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

E(i)xM -Enterprise Intelligent Modular Management Platform

Technical Whitepaper

LVI AG – Weinfelden, Switzerland
www.lvi-ag.ch

Changes to the documentation, version 3.0

More info assigned to

- SAP Monitoring: Chapters 4.2; 4.2.3
- DBO (DBMS Management): Chapter 4.3
- AI: Chapters 4.4; 4.4.1-3
- Inventory: Chapter 4.6; 4.6.7



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

Foreword

The evolution of E(i)xM into a modular enterprise intelligence platform would not have been possible without strong strategic collaboration in the fields of Artificial Intelligence and architectural design.

We would like to express our sincere gratitude to **Prof. HN Shankar** for his enormously important strategic contribution to the conceptualization and development of the AI and system design foundations underlying E(i)xM.

His guidance in aligning advanced AI methodologies with practical enterprise architecture principles has significantly influenced the structural direction of the platform. The integration of intelligent analysis, structured data modeling, and scalable architectural patterns reflects insights that emerged through this collaboration.

In particular, the development of:

- AI-ready data structures
- Modular intelligence layering
- Predictive modeling foundations
- Cross-domain analytical design principles

was made possible through his strategic input and academic perspective.

Without his support and intellectual partnership, the necessary conceptual groundwork for integrating AI into a governance-oriented enterprise platform could not have been established in its current form.

We extend our deep appreciation for his collaboration and continued engagement in shaping the technological and strategic direction of E(i)xM.

1. Abstract

E(i)xM (Enterprise intelligent Modular Management) is a containerized, modular enterprise platform designed to unify operational monitoring, SAP supervision, database optimization and AI-driven analytics within a single architectural framework.

Unlike classical monitoring systems that focus on data collection and visualization only, E(i)xM integrates:

- Deep SAP system interrogation
- Database maintenance orchestration
- Structured execution logging
- AI-driven cross-domain analysis
- Centralized dashboarding
- Modular licensing and deployment

The platform enables partners and customers to transition from reactive monitoring to intelligent operational optimization.

2. Design Principles

E(i)xM has been developed under the following core architectural principles:

1. Modular separation of concerns
2. Unified technology stack
3. Container-first deployment
4. Centralized authentication & licensing
5. Structured data persistence
6. AI-readiness by design
7. Cross-platform operability (Windows & Linux)

3. Platform Architecture

3.1 Containerized Deployment Model

All E(i)xM modules are delivered via Docker-based containerization.

Key architectural components:

- Reverse proxy with automatic SSL (Let's Encrypt)
- SQL Server database with automated backups and point-in-time recovery
- REST-based services
- JWT-based authentication
- Background job processing (Hangfire concept)
- Health checks & diagnostics
- Orchestration via Docker Compose

Benefits

- Environment consistency
- Rapid rollout for partners
- Clear edition differentiation
- Infrastructure abstraction
- Simplified lifecycle management



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

3.2 Core Platform Layer

The E(i)xM core provides:

- Central configuration management
- Profile-based connection handling
- Encrypted credential storage
- License enforcement
- Unified logging
- Database abstraction
- API exposure

All modules share:

- Common database
- Common authentication
- Common monitoring infrastructure
- Unified telemetry
- Centralized update mechanism

4. Module Architecture

4.1 PILOTAGE – Operational Control Layer

PILOTAGE functions as the operational cockpit of the E(i)xM ecosystem.

Functional Characteristics

- Dynamic dashboards
- Alert aggregation
- Escalation state management
- Multi-dimensional grouping
- Drill-down & acknowledgement logic
- Cross-module visualization

Architectural Role

PILOTAGE does not directly collect raw SAP or DB data.
It consumes structured outputs from:

- SAP MONI
- DB Optimizer
- AI Module
- Infrastructure metrics

It serves as:

- Visualization layer
- Execution orchestration interface
- Operational governance console

4.2 SAP MONI – SAP Data Framework

SAP MONI is designed to retrieve SAP data directly from SAP systems, avoiding limitations of classical CCMS approaches.

SAP MONI provides its data by DDL templates for any kind of NMS (actually tested with PRTG & ZABBIX):

- uses Auto Discovery, which means that the template is just added to NMS and all items and checks start retrieving and displaying the data.
- The auto-discovery template does the following:
 - Uses Low-Level Discovery (LLD)
 - HTTP_AGENT items fetch the raw JSON, then discovery rules automatically find all channels in the response
 - Dependent items are created automatically per channel, extracting real values via JSON-Path pre-processing –
 - New channels from SAP are discovered and added without manual intervention, includes trigger prototypes (alerts for failed jobs, expiring certificates, short dumps, etc.)

4.2.1 Architectural Characteristics

- REST API Service
- Direct SAP RFC communication
- ABAP-based function integration (when required)
- Unlimited SAP instance support
- Profile-based configuration



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

4.2.2 Data Acquisition Model

Instead of retrieving monitoring data through web portals or indirect APIs, SAP MONI:

- Executes RFC calls
- Uses ABAP implementations for non-queryable data
- Reads SAP-internal structures
- Applies predefined monitoring templates

This allows:

- Higher data reliability
- Real-time retrieval
- Structured consistency across landscapes

4.2.3 Monitoring Scope

Refer to actual version of “E(i)xM SAP Moni V3 feature overview.PDF”

4.3 DB Optimizer (DBO) – Execution & Optimization Engine

Database Monitoring (for all kind of DBMS):

- One generic DB query sensor that connects via ADO.NET (managed NuGet providers — no native ODBC drivers needed in Docker) and executes SQL queries against the database.
- Query library as a user-facing catalogue of pre-defined monitoring queries with vendor-specific variants for each DBMS.
- Users browse the catalogue while creating a sensor within its NMS, select a query, and E(i)xM handles the rest.
- Customers can add own queries to the library.

One sensor, one code path, fully extensible!

4.3.1 Design Concept

- Integration of proven maintenance scripts (Brent Ozar, Ola Hallengren)
- Scheduler-driven execution
- Result verification queries
- Protocol-based storage
- Export to NMS (examples ZABBIX / PRTG)
- Controlled change monitoring

4.3.2 Execution Model

1. Input queries downloaded & versioned
2. Queries stored in CRUD-based management table
3. Assigned to scheduler
4. Execution triggered
5. Validation query executed
6. Results stored as protocol
7. Visualization via PILOTAGE
8. Optional export as XML/JSON

The execution lifecycle is fully logged and reversible based on monitoring outcome.

4.3.3 AI-Readiness

DBO stores structured result history.

This enables:

- AI-based evaluation of optimization impact
- Pattern recognition across maintenance cycles
- Predictive modeling

4.4 AI Module – Intelligent Analysis Layer

Our agentic AI solution (using MCP) allows the AI to understand the data structure and functions of E(i)xM. The following functionalities are now integrated:

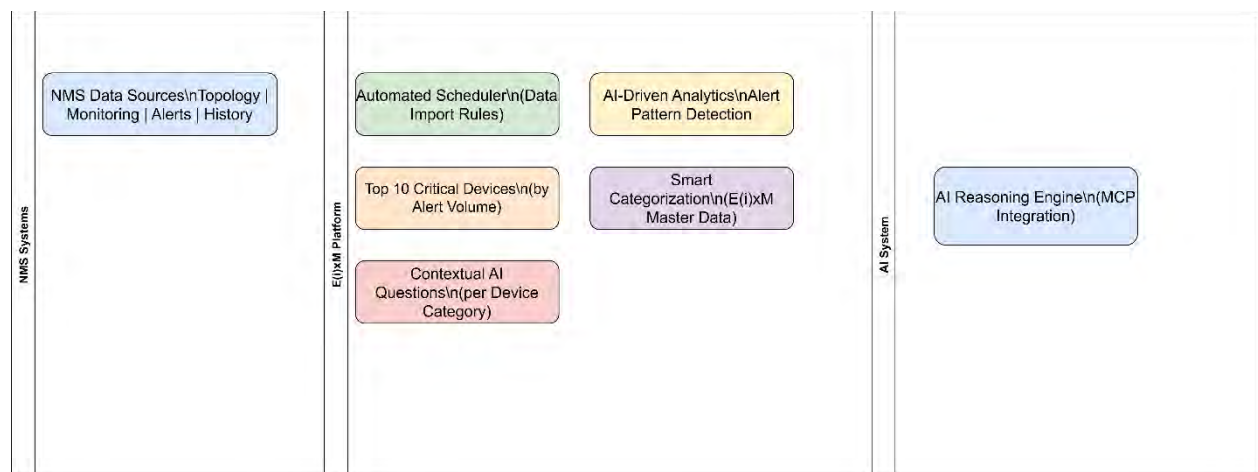
Manage and data input of different NMS containing topology, monitoring data, alerts and history data.

Further the topology is within E(i)xM master data structured by categories. Based on our experience and research we have generated a list of questions for AI per category.

E(i)xM has an integrated scheduler which allows to retrieve NMS data, based on the defined import filters and type of data.

After each scheduled NMS data import E(i)xM executes a statistical analyse of the alerts. Result (define able by user):

Top 10 Devices by alert count. Each device belongs to a category. Each category has a list of AI questions. E(i)xM now connects to the by the user chosen AI system and uses those questions to retrieve answers by AI. E(i)xM is able to check the AI answers to go on. After all questions are processed E(i)xM gives the AI the order to create a task, assign a team (based on master data) and assign this into an Agile board. E(i)xM creates a message to inform the team about the new analysis, which will be managed using the E(i)xM agile board.



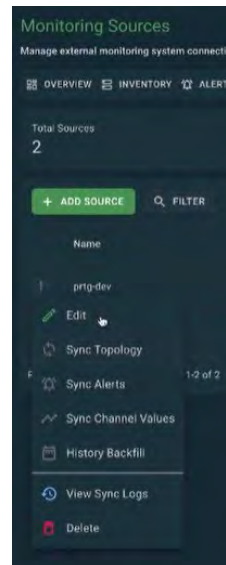
4.4.1 Data Processing Architecture

AI based:

- Uses «MCP» (Model Context Protocol)
- Allows AI to understand E(i)xM
- Enables to use and modify internal data
- Based on clear rules (data protection)

Other sources:

- NMS data & structure (actually PRTG & ZABBIX)
- NMS topology
- Historical data



4.4.2 Multi-NMS Integration

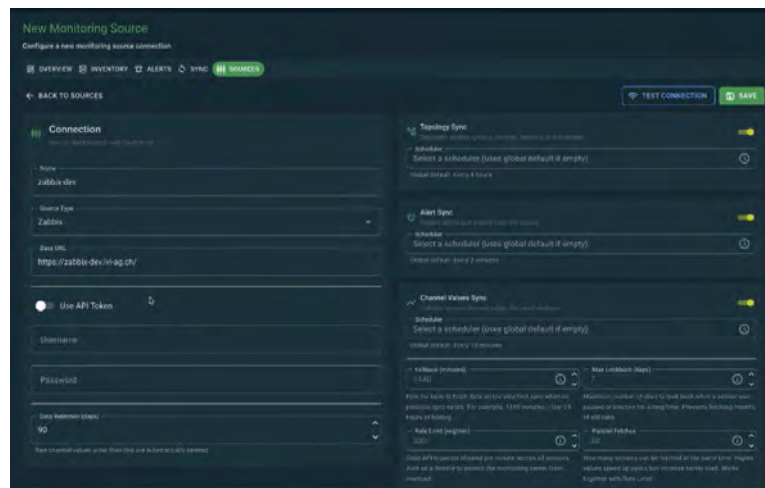
Supports:

- PRTG
- ZABBIX

Each NMS is modularly implemented via dedicated API calls.

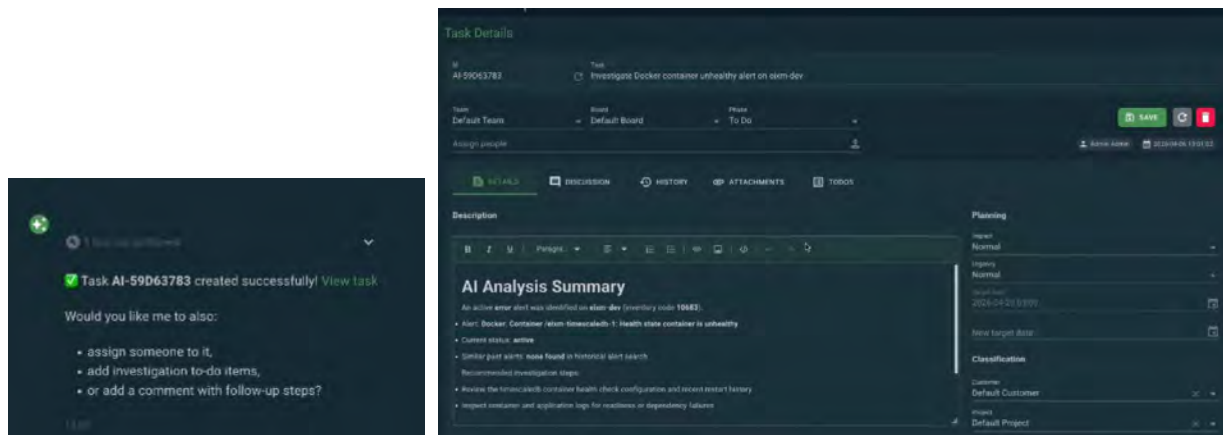
Configurable parameters:

- NMS
- Topology
- Alerts
- Channel & values
- Individual filters



4.4.3 Agentic AI integrated into E(i)xM

AI analysis automatically all alarms and creates, if needed, a task within “PILOTAGE” AI board:



4.4.4 Strategic Role

AI acts as:

- Correlation engine
- Root cause analysis assistant
- Predictive advisory system
- Cross-module intelligence layer

Future expansion includes:

- AI meta-evaluation (AI Judge)
- Automated response ranking
- Predictive anomaly detection

4.5 Project Management & Reporting Modules

Architectural Extension: From Operational Intelligence to Enterprise Governance

While the core modules (PILOTAGE, SAP MONI, DB Optimizer, AI) focus on monitoring, execution, and intelligent analysis, E(i)xM also provides structured modules for:

- Organizational structuring
- Resource planning
- Project execution governance
- Commercial reporting

These modules share the same architectural foundation:

- Containerized deployment
- Shared database schema
- Unified authentication
- Central license enforcement
- REST-based communication

They extend E(i)xM from a technical monitoring framework into a broader enterprise coordination platform.

4.5.1 AgileBoards – Project & Team Architecture Layer

Architectural Position

AgileBoards operates as the structured organizational layer within E(i)xM.

It manages:

Group → Team → User → Project/Task hierarchy

This hierarchy integrates directly with:

- Role-based access control
- Scheduler assignment logic
- Responsibility mapping
- Escalation workflows in PILOTAGE



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

Technical Characteristics

- Centralized relational data model for organizational entities
- Status-driven workflow states
- Role-binding via JWT identity model
- Cross-module reference capability (e.g., linking SAP alerts to teams)
- Real-time board updates via shared database context

Architectural Role

AgileBoards enables:

- Assignment of SAP MONI findings to teams
- Governance over DB Optimizer maintenance actions
- Tracking of AI-generated recommendations
- Structured project orchestration across technical domains

It converts system intelligence into actionable governance structures.

4.5.2 TimeKeeping & Scheduler – Resource Coordination Layer

Architectural Position

TimeKeeping & Scheduler provides structured time and availability management integrated with:

- User identity
- Team structures
- Project assignments
- Operational planning

Technical Characteristics

- Centralized time-entry data persistence
- Calendar synchronization logic
- Activity type modeling (absence, holiday, shift, availability)
- API-based integration with organizational entities
- Extensible master-data integration (e.g., SAP HR scenarios)

Architectural Role

The module supports:

- SLA-driven planning
- Resource capacity management
- Project-based time allocation
- Transparent availability tracking

In combination with AgileBoards, it enables resource-aware project governance.



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

4.5.3 Customer / Creditor / Debtor Reports – Commercial Data Layer

Architectural Position

This module introduces structured financial reporting into the E(i)xM ecosystem.

It consolidates:

- Customer data
- Vendor data
- Debtor information
- Invoice and article data

Technical Characteristics

- Multi-dimensional relational reporting schema
- Hierarchical drill-down (Company → User → Invoice → Article)
- Configurable data slicing
- Structured aggregation logic
- Integration-ready data endpoints

Architectural Role

The module allows:

- Commercial transparency
- Service contract reporting
- Project-based financial analysis
- Cross-domain performance measurement

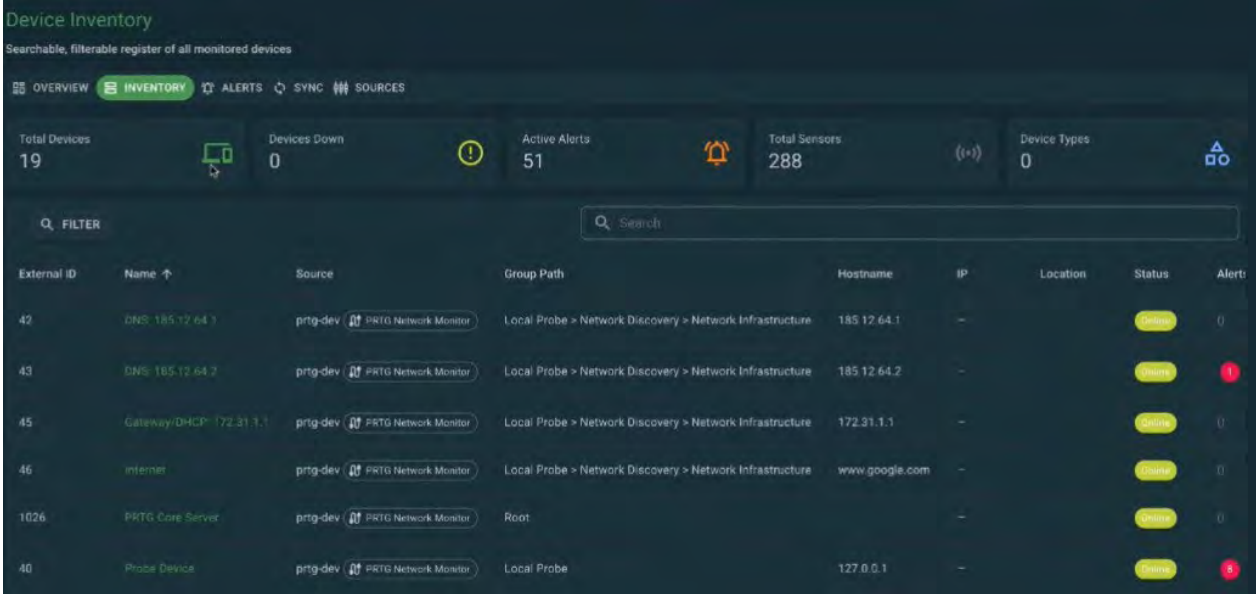
When combined with:

- AgileBoards → project structure
- TimeKeeping → resource consumption
- SAP MONI / DB Optimizer → technical metrics

E(i)xM enables technical-to-commercial traceability.

4.6 Inventory & Ticket Integration – Asset Intelligence & ITSM Orchestration Layer

Based on NMS data integration (refer to [4.4.2 Multi-NMS Integration](#)) E(i)xM is an “Enterprise” source for inventory, topology and alarms (tickets):



Device Inventory
Searchable, filterable register of all monitored devices

OVERVIEW INVENTORY ALERTS SYNC SOURCES

Total Devices: 19 | Devices Down: 0 | Active Alerts: 51 | Total Sensors: 288 | Device Types: 0

External ID	Name	Source	Group Path	Hostname	IP	Location	Status	Alerts
42	DNS: 185.12.64.1	prtg-dev	Local Probe > Network Discovery > Network Infrastructure	185.12.64.1	-	-	Online	0
43	DNS: 185.12.64.2	prtg-dev	Local Probe > Network Discovery > Network Infrastructure	185.12.64.2	-	-	Online	1
45	Gateway/DHCP: 172.31.1.1	prtg-dev	Local Probe > Network Discovery > Network Infrastructure	172.31.1.1	-	-	Online	0
46	internet	prtg-dev	Local Probe > Network Discovery > Network Infrastructure	www.google.com	-	-	Online	0
1026	PRTG Core Server	prtg-dev	Root	-	-	-	Online	0
40	Probe Device	prtg-dev	Local Probe	127.0.0.1	-	-	Online	8

Top 10 Devices by Alert Count

External ID	Name	Source	Group Path	Hostname	Status	Alerts
10682	Zabbix-Dev	Zabbix-Dev	Disconnected Hosts	zabbix-dev	Offline	2
10684	Zabbix-Server	Zabbix-Dev	Zabbix-Server	zabbix-server	Offline	2
40	Probe Device	prtg-dev	Local Probe > Network Discovery > Network Infrastructure	127.0.0.1	Online	8
2306	Local Probe	prtg-dev	Local Probe > Network Discovery > Local > Local	192.0.0.1	Online	1
2305	Local Probe	prtg-dev	Local Probe > Network Discovery > Local > Local	192.0.0.1	Online	1
2308	Local Probe	prtg-dev	Local Probe > Network Discovery > Local > Local	192.0.0.1	Online	1
2307	Local Probe	prtg-dev	Local Probe > Network Discovery > Local > Local	192.0.0.1	Online	1
2304	Local Probe	prtg-dev	Local Probe > Network Discovery > Local > Local	192.0.0.1	Online	1
2303	Local Probe	prtg-dev	Local Probe > Network Discovery > Local > Local	192.0.0.1	Online	1
10684	Zabbix-Server	Zabbix-Dev	Disconnected Hosts	zabbix-server	Offline	2
10681	Zabbix-Agent	Zabbix-Dev	Disconnected Hosts	zabbix-agent	Offline	2



Monitoring Overview
Infrastructure monitoring dashboard - devices, alerts, probes, and data sources

INVENTORY INVENTORY ALERTS SYNC SOURCES

All Sources: 19 Sources

Active Alerts: 53 | Sensors: 288 | Probes: 3 / 3 | Devices: 2

Device Status: 53 Alerts

Sensor Type Distribution: 288 Sensors

Local Probe | Zabbix Server



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

4.6.1 Architectural Position

The Inventory & Ticket Integration module extends E(i)xM from a monitoring and execution framework into a structured IT Service Management (ITSM)-ready platform.

While:

- SAP MONI provides structured SAP telemetry,
- DB Optimizer executes controlled database optimization,
- AI provides correlation and predictive analytics,
- AgileBoards and TimeKeeping manage organizational execution,

the Inventory & Ticket layer provides the **structural data backbone** that connects:

Infrastructure Entities

↔ Monitoring Systems

↔ Ticket Lifecycle

↔ Organizational Responsibility

↔ SLA & Service Governance

This module acts as the synchronization and normalization layer between external systems and the E(i)xM core database.

4.6.2 Core Architectural Responsibilities

The Inventory & Ticket layer performs five technical responsibilities:

1. External Data Synchronization
2. Inventory Normalization
3. Change Detection & State Classification
4. Ticket Lifecycle Orchestration
5. SLA & Historical Data Structuring

It does not replace monitoring systems.

Instead, it creates a structured governance layer above them.

4.6.3 Inventory Synchronization Architecture

External System Integration

E(i)xM connects via API or event-based ingestion to:

- PRTG
- Zabbix
- Other REST-capable NMS platforms
- Optional discovery engines (Nmap, SNMP layers, etc.)

Synchronization is orchestrated by the PILOTAGE scheduler.

Synchronization Model

- Default synchronization interval: 24 hours
- But highly configurable to any wished schedule

Optional:

- Webhook-triggered near-real-time update (based on integrated enterprise workload automation and orchestration platform)

Idempotent Update Logic

To ensure data consistency:

- Device keys are defined (e.g. {PrimaryIP + MAC})
- Deduplication logic applied
- “New”, “Updated”, “Missing” states derived via reconciliation

The reconciliation process compares:

Current NMS snapshot vs. Persisted E(i)xM inventory state

This creates deterministic inventory state transitions.

4.6.4 Inventory Data Model

The module introduces a structured relational schema including:

Company

- Service Group
- Service Owner
- Host
- Sensor
- Ticket

Additional relational layers:

- Device metadata
- Tag inheritance
- Historical state changes
- SLA attributes
- Business process mapping (future-ready)

This model enables:

- Multi-customer isolation
- Cross-service correlation
- Role-based access enforcement
- AI-ready structured persistence

4.6.5 Data Aggregation & Retention Architecture

E(i)xM Inventory is not designed for high-frequency raw metric storage.

Instead, it applies controlled aggregation:

For each monitored metric:

- Minimum value
- Maximum value
- Average value
- Time reference



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

Benefits:

- Reduced storage growth
- Long-term historical analytics
- Efficient AI summarization
- Token-optimized AI ingestion

Retention Policy

Default: long-term persistence (multi-year capability)

Inactive entities:

- Marked inactive after configurable threshold
- Archived instead of deleted
- Reactivable if rediscovered

Optional:

- Automated deletion rules for aged data

This ensures full auditability and AI-based longitudinal analysis.

4.6.6 Change Detection & Status Classification Engine

The change detection subsystem classifies entities as:

- New
- Updated
- Missing
- No Data
- Inactive
- Archived

State transitions are event-driven and logged.

Example lifecycle:

Discovered → Active → Missing → Inactive → Archived

	LVI AG Amriswilerstr.41 CH 8570 Weinfelden www.lvi-ag.ch
---	--

Each transition is:

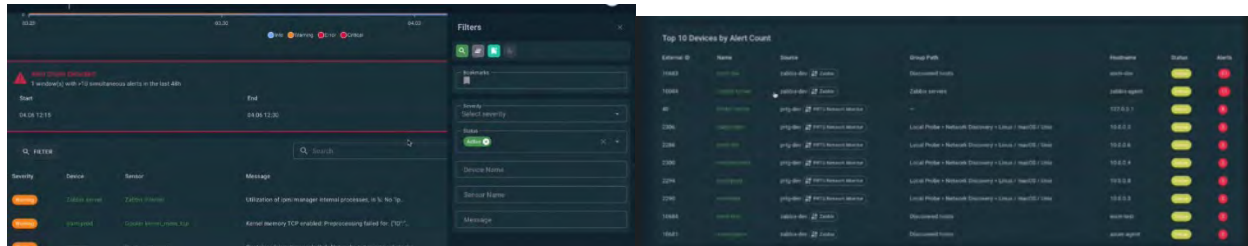
- Timestamped
- Audit-logged
- Available for SLA analytics

This mechanism is critical for:

- Infrastructure governance
- Service reliability tracking
- Predictive AI modeling

4.6.7 Ticket Ingestion & Lifecycle Management

Based on the NMS integration (refer [4.4.2 Multi-NMS Integration](#)) all alarms are in E(i)xM available even if you use another Ticket-Tool. This allows you to have one common view over all NMS:



The Ticket Integration subsystem supports:

- API-based ingestion
- Webhook-triggered events

When recovery event is received:

- Matching open ticket identified
- Ticket status automatically transitioned to closed
- Resolution duration calculated

All state changes are time-stamped and immutable.



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

4.6.8 SLA & Resolution Tracking Model

Each ticket stores:

- Creation timestamp
- Assignment timestamp
- Update timestamps
- Closure timestamp
- Responsible entity

Derived metrics:

- Mean Time to Detect (MTTD)
- Mean Time to Resolve (MTTR)
- Incident frequency per device/service
- SLA breach indicators

This data integrates directly with:

AgileBoards → Task orchestration
TimeKeeping → Resource allocation
Reporting module → Commercial visibility
AI module → Recurrence prediction

4.6.9 Integration with Organizational Governance

Inventory & Ticket layer integrates with:

AgileBoards

- Maps tickets to structured team hierarchy
- Enables responsibility tracking

TimeKeeping

- Correlates resolution time with resource availability

PILOTAGE

- Visualizes open tickets
- Enables controlled update workflows



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

The module therefore bridges:

Technical detection

→ Organizational execution

→ SLA evaluation

4.6.10 AI-Agentic & Predictive Enablement

Because inventory and ticket data are:

- Structured
- Normalized
- Time-sequenced
- Multi-domain linked

The AI Module can perform:

- Trend-based anomaly prediction
- Recurring incident detection
- Service risk modeling
- Device failure probability scoring
- Cross-layer correlation (SAP ↔ DB ↔ Infra ↔ Ticket history)

Example predictive pattern:

Increasing CPU trend

+

Repeated high-severity tickets

+

Growing MTTR

→ Predictive maintenance recommendation.

This transforms the architecture from:

Reactive alert handling to Predictive service governance.



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

4.6.11 Discovery & Topology Integration

The architecture supports optional discovery microservices using:

- Zabbix API discovery
- Nmap-based subnet scanning
- SNMP interrogation layers
- High-speed scan engines (e.g., Masscan)
- Normalization pipeline into E(i)xM schema

Discovery workflow:

Scan

- Identify
- Enrich (SNMP / metadata)
- Normalize
- Validate
- Persist
- Assign responsibility

This ensures vendor-neutral extensibility.

4.6.12 Architectural Summary

The Inventory & Ticket Integration layer introduces:

Structured Infrastructure Modeling
Change Detection Engine
Ticket Lifecycle Automation
SLA Analytics Framework
AI-ready Historical Persistence

It transforms E(i)xM from:

Monitoring & Optimization Platform into: Modular IT Service Intelligence & Governance Architecture.

5. Integrated Data Flow

The strength of E(i)xM lies in cross-module orchestration.

5.1 Logical Data Chain

SAP MONI → structured SAP metrics
DB Optimizer → execution & validation metrics
Infrastructure metrics → performance baseline
↓
E(i)xM Core Database
↓
PILOTAGE visualization
↓
AI contextual analysis

5.2 Cross-Domain Scenario Example

1. SAP dialog time increases.
2. SAP MONI detects SLA violation.
3. DB Optimizer detects index fragmentation.
4. Maintenance executed.
5. AI correlates:
 - CPU trends
 - DB execution metrics
 - SAP workload
6. AI recommends configuration adjustment.
7. PILOTAGE displays performance stabilization.

This creates a closed-loop:

Monitoring → Execution → Validation → Intelligence



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

5.3 Extended Enterprise Data Chain

With the addition of governance and reporting modules, the logical chain extends:

Technical Data Layer

SAP MONI → SAP metrics

DB Optimizer → optimization metrics

Infrastructure metrics



Intelligence Layer

AI analysis



Governance Layer

AgileBoards → responsibility & project structure

TimeKeeping → resource allocation



Commercial Layer

Customer/Creditor/Debitor Reports → financial visibility

This enables a full-loop architecture:

Monitoring

→ Optimization

→ Validation

→ Intelligence

→ Responsibility Assignment

→ Resource Allocation

→ Commercial Evaluation

6. Security & Governance

- JWT-based authentication
- Encrypted password storage
- Centralized license validation
- Environment-based configuration
- Secure API key handling (.env model)
- Role-based access control
- Unified logging

7. Deployment & Scalability

7.1 Deployment Options

- On-premises
- Partner cloud
- Customer cloud
- Hybrid

7.2 Scalability

- Unlimited SAP instances
- Multiple DB instances
- Horizontal module scaling
- Container orchestration ready

7.3 Edition Differentiation

Environment-based configuration allows:

- Free Edition (restricted usage)
- Maintained Partner Edition
- LVI Full-Service Edition

All editions share the same technical foundation.

8. Differentiation from Classical Monitoring

Unlike traditional monitoring platforms, E(i)xM integrates:

- Organizational governance structures
- Resource planning capabilities
- Commercial reporting integration

This allows cross-domain traceability between:

- Technical performance
- Organizational responsibility
- Resource consumption
- Financial outcome

No classical monitoring platform offers this integrated architecture.

Traditional monitoring systems:

- Focus on alerting
- Limited cross-layer analysis
- No integrated execution layer
- No AI orchestration

E(i)xM provides:

- Direct SAP integration
- Structured DB optimization lifecycle
- Centralized architecture
- AI-based intelligence
- Container-native deployment
- Modular expansion capability

9. Strategic Technical Outlook

Planned architectural evolution:

- AI meta-evaluation layer helps troubleshooting based on inhouse knowledgebase by using GenAI & RAG based documentation
- Predictive anomaly detection
- Extended DBMS support
- Responsibility mapping to individuals and team lead to enable self-assessment of performance
- Advanced topology mapping, provides capability to map Inventory items to business processes which helps in assessing impact
- AI-based change impact assessment
- Deeper integration between AI and project governance
- Financial-performance correlation modelling
- Business process impact mapping across technical and commercial layers



LVI AG
Amriswilerstr.41
CH 8570 Weinfelden
www.lvi-ag.ch

10. Conclusion

E(i)xM is a modular enterprise intelligence framework.

It combines:

- Deep system visibility
- Controlled execution
- Structured logging
- Intelligent analysis
- Unified deployment

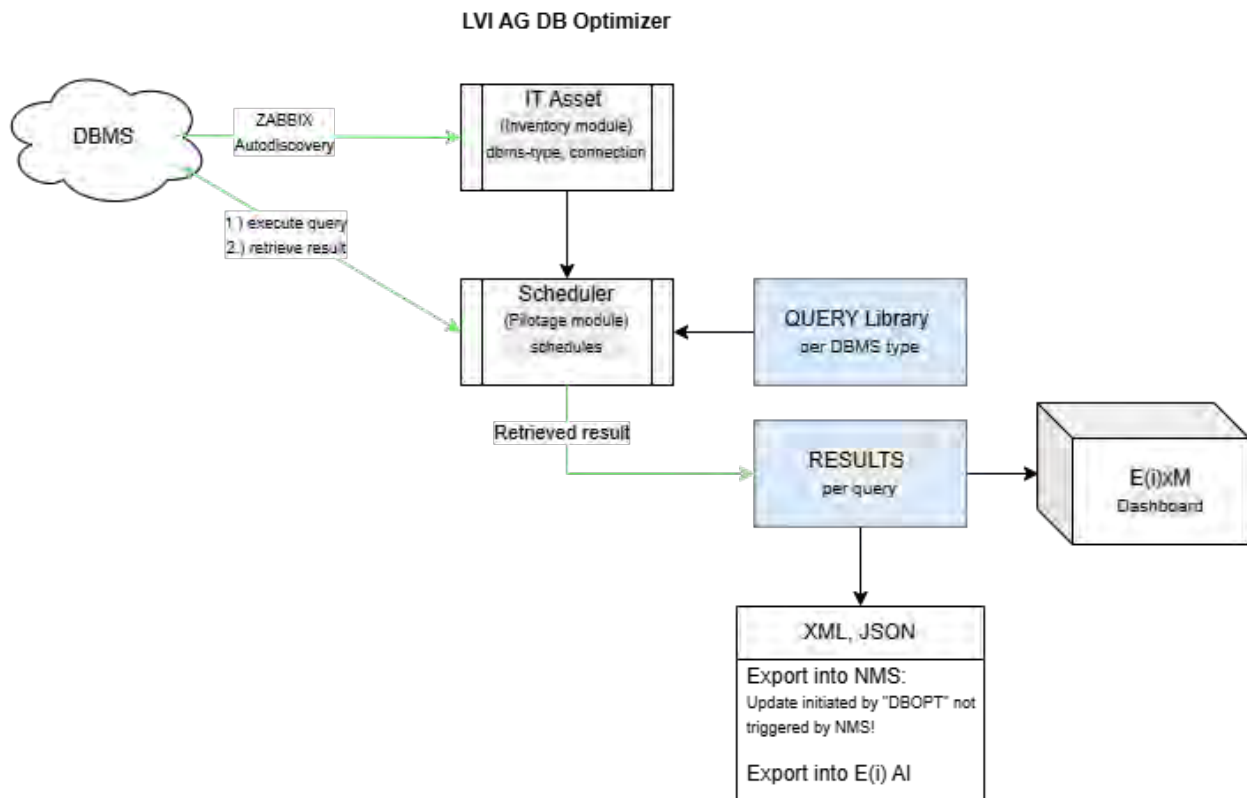
For partners and enterprise customers, it provides a technical foundation for:

- SAP optimization programs
- Database performance initiatives
- AI-driven operational services
- Managed monitoring offerings
- Scalable project environments

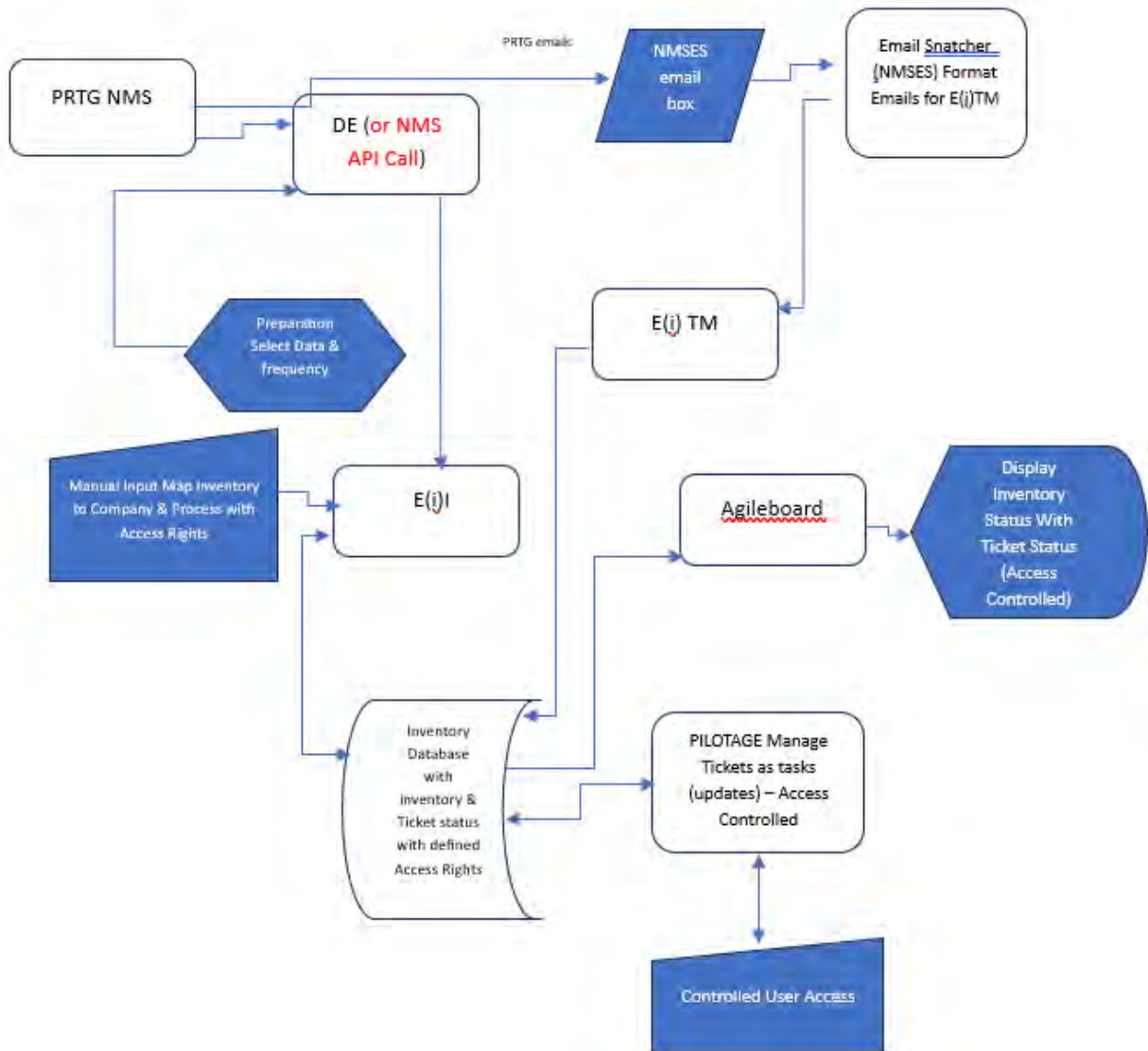
E(i)xM transforms monitoring into operational intelligence.

Appendix

Integrated enterprise workload automation and orchestration platform

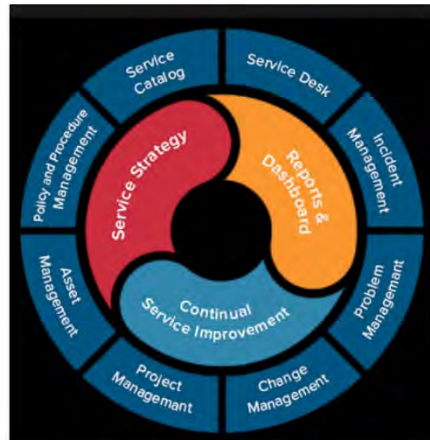


Ticket Workflow



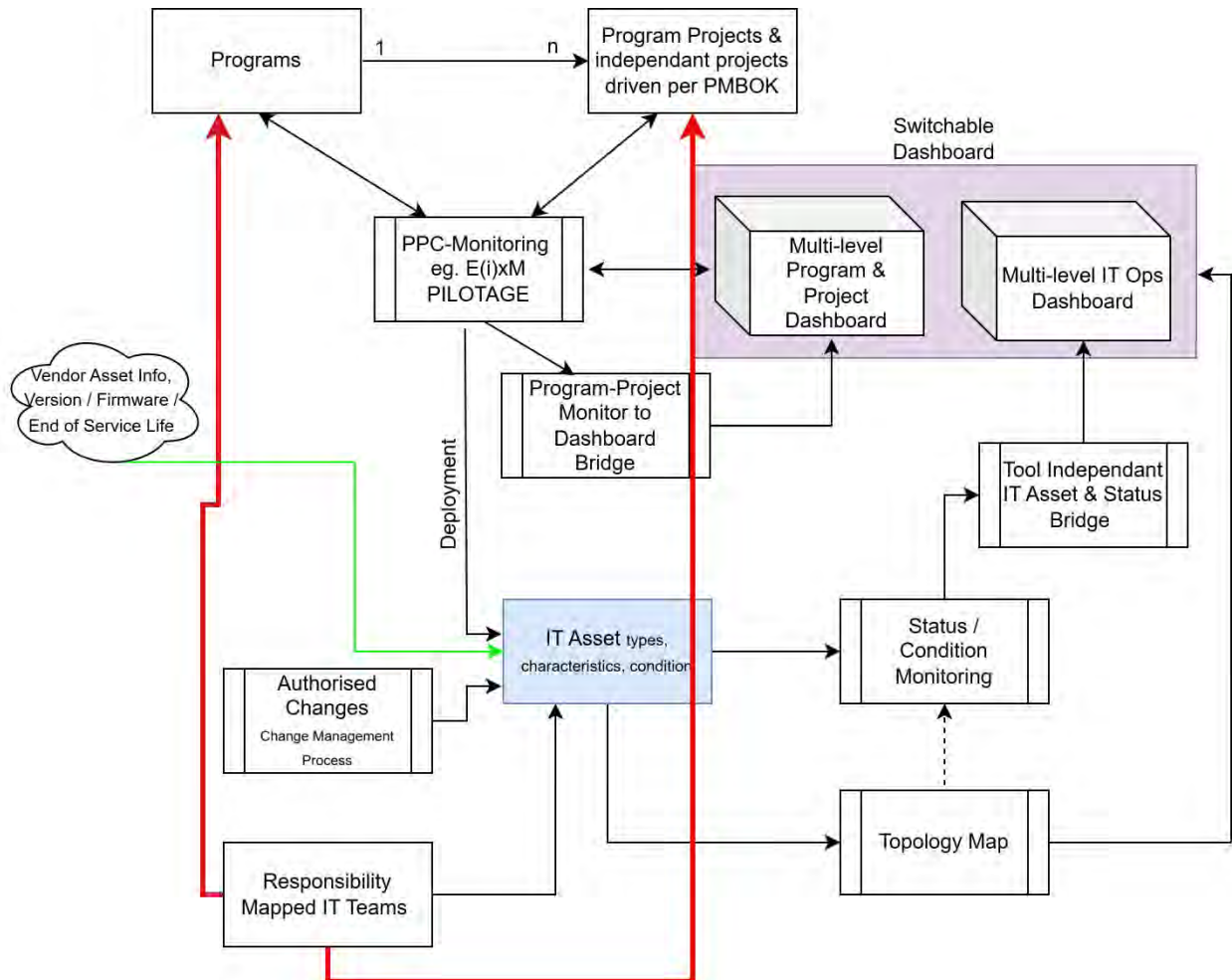
E(i)xM Service Management Capability

LVI AG IT Service Management Capability



At LVI AG we bring the richness of our experience to establish and manage IT service by using inhouse developed tools that integrate and orchestrate existing solutions in Network Monitoring and COTS components to create an Integrated Service Management. We do this by capturing required data, draw insights present dashboards for action and monitoring to meet SLA.

E(i)xM Asset Management Workflow



E(i)xM Inventory data

