\Orchestrating a brighter world

NEC

WebOTX Enterprise Service Bus

November, 2015

NEC Corporation,
Cloud Platform Division,
WebOTX Group

Orchestrating a brighter world

NEC brings together and integrates technology and expertise to create the ICT-enabled society of tomorrow.
We collaborate closely with partners and customers around the world, orchestrating each project to ensure all its parts are fine-tuned to local needs.

Every day, our innovative solutions for society contribute to greater safety, security, efficiency and equality, and enable people to live brighter lives.

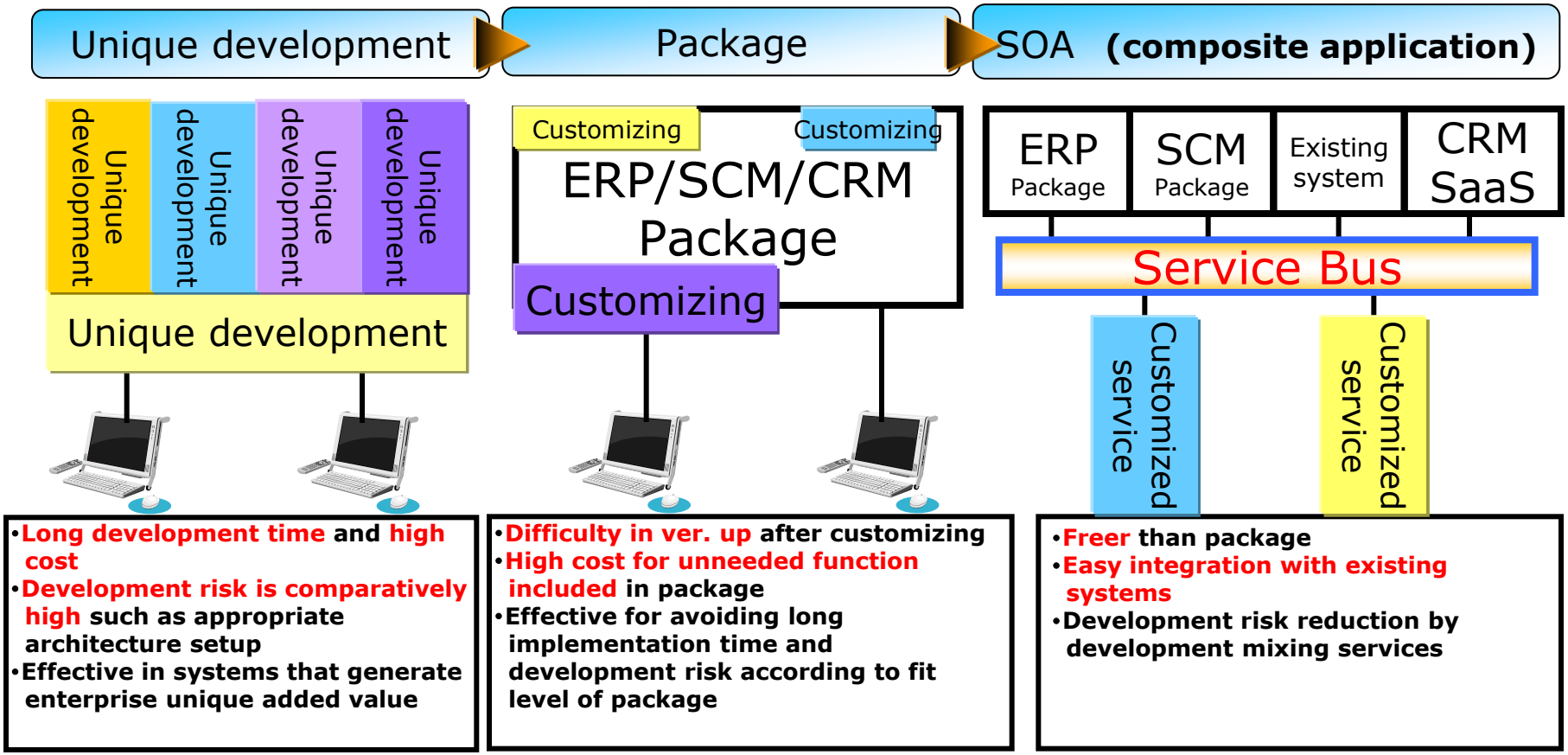
Index

1. What is SOA?
2. WebOTX Enterprise Service Bus

1. What is SOA?

No scratch development / package customizing

- From customizing oriented SI to service integration oriented system configuration
- System configuration method evolved to composite application with SOA for development term/cost optimization from scratch development.



4 patterns of SOA implementation

Breaks down into 4 major implementation patterns of exercising business / IT impact of SOA effectively, from SOA case study analysis.

1) Architecture platform

- In case that business systems are slightly different among branch system, HQ system, global system etc, architecture is established enabling to divide core function (core service) from specific function (specific service).
- System integration regarding shared service, M&A, enterprise integration for total optimization by excluding information system duplication in group
- IT infrastructure and information system architecture setting for the future

2) Existing assets reuse

- While using existing assets (mainframe, open systems), replaces systems by SOA based systems in renewal timing. Reduces after support / operation cost, by creating service interface gradually without risks.
- For integrating between internal and external systems, develops service interface for external system using existing systems.

3) Business process visualization / adaptation to change

- Adopts SOA as system platform to support Business Process Management.
- Adopts SOA for enhancing internal control / compliance, and visualizing business process.
- For system efficiency with various business process using common components.

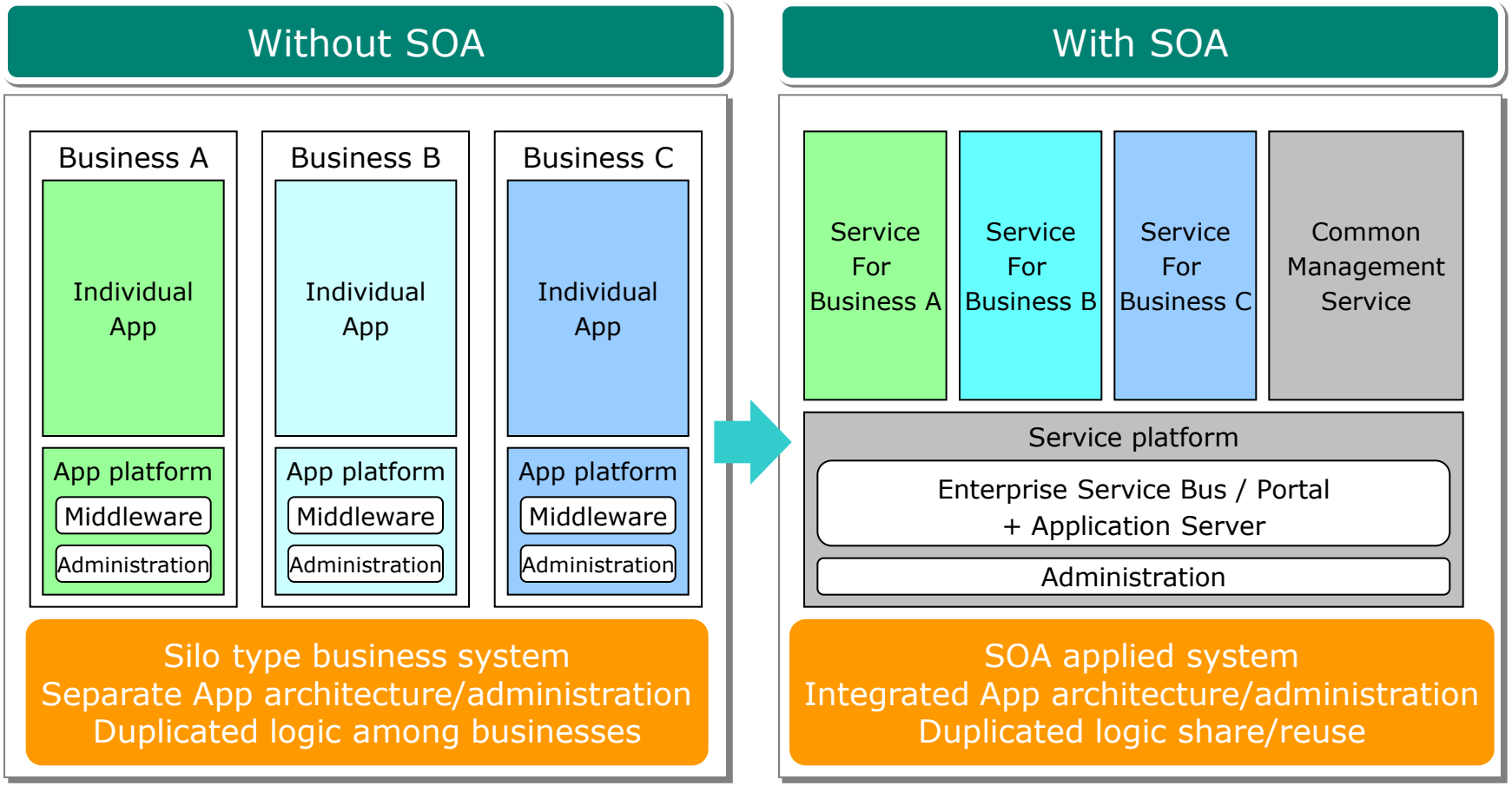
4) Data integration / front integration

- Integrates distributed analogous data, and optimizes operations cost.
- Integrates masters with M&A / re-organization.
- Real time business management information or integration of business information (Portal, dashboard, enterprise mashup)

Architecture platform

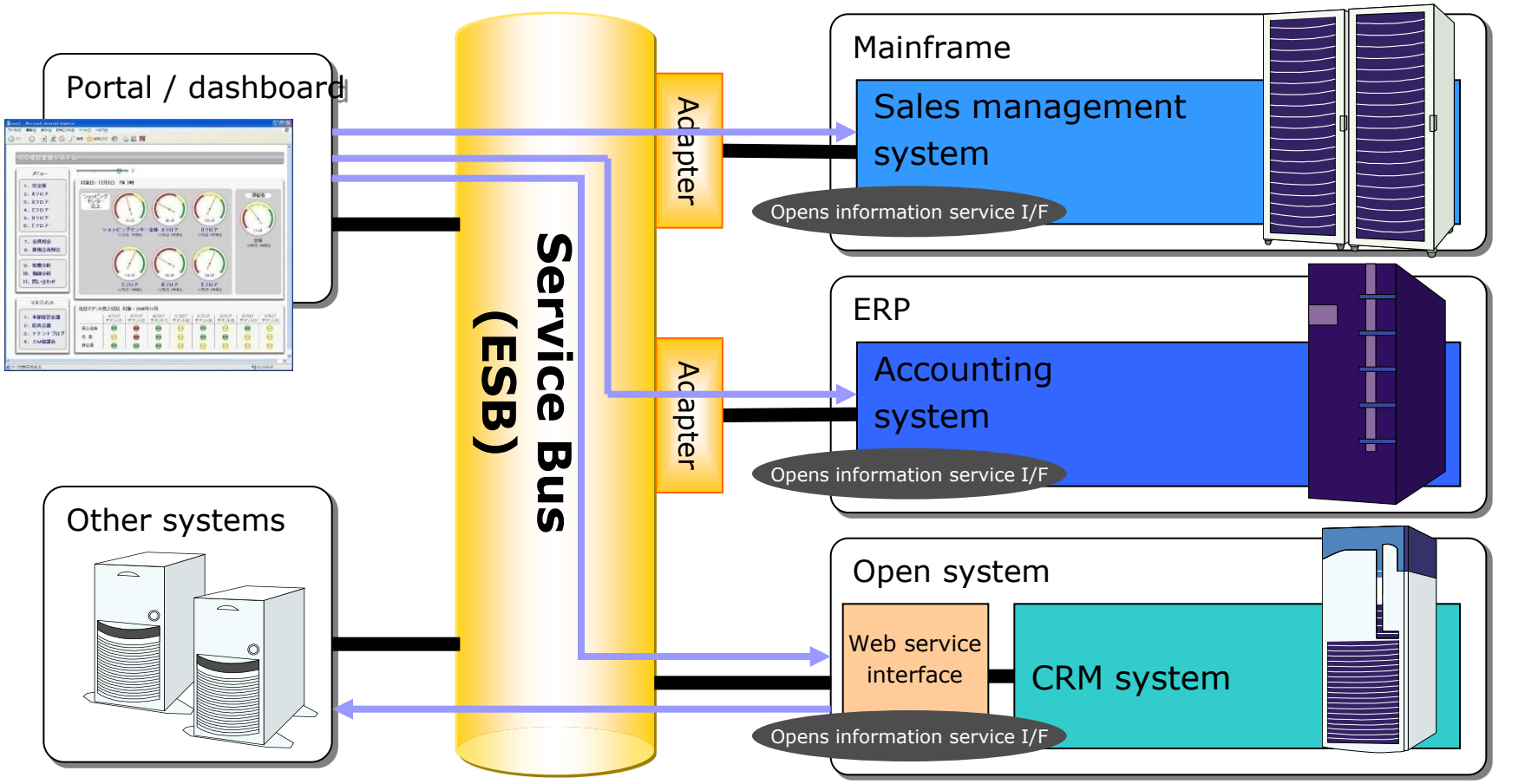
Total optimization by resolving function duplication in same information system, creating shared service, system integration related to M&A and enterprise integration.

Enables to consider based on SOA as a future information system architecture.



Existing assets reuse

While reusing existing assets including mainframe / open systems as a service, realizes portal integration of information from each system, or integration with new system.



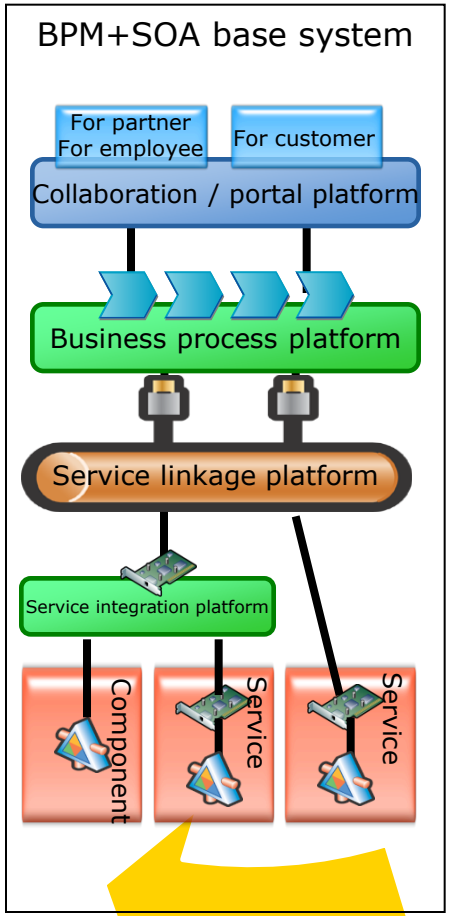
Opens enterprise system / application with standard interface, and integrates with decision navigator and other systems

Business process visualization / adaptation to change

Make views of “As-is” and “To-be” of business process , enables flexible change of business process by applying SOA to BPM, and improves process.

action
Formulates/executes business process improvement action.

check
Business process monitoring



plan
IT plan, target business selection
Business process analysis/simulation

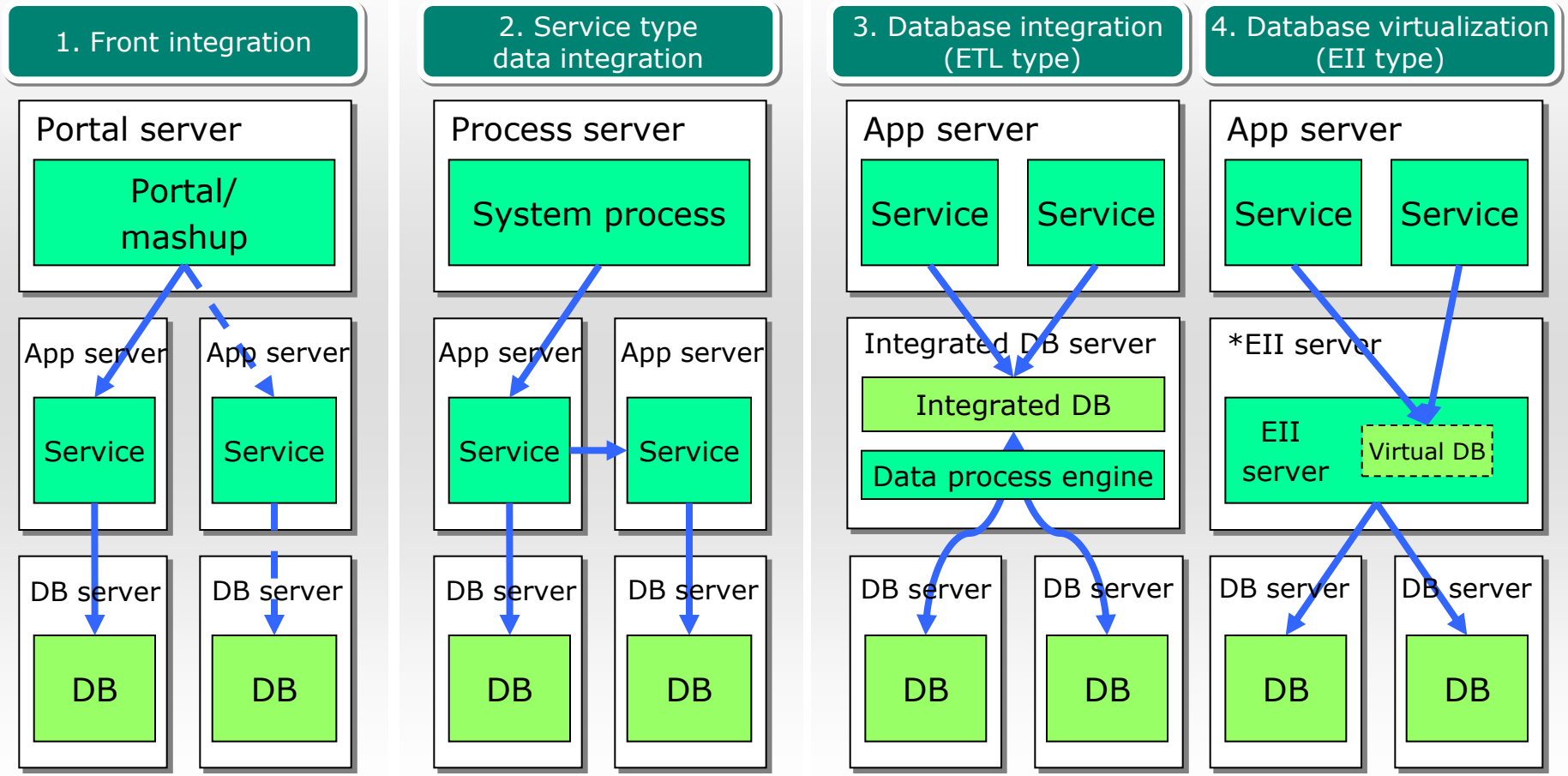
Business process setting/development

- Business process visualization / standardization
- Efficient business operation
- Improves customer service / lead time
- For internal control / SOX and business process integration
- Rapid support against new business
- Uses common service and components

Data integration / front integration

Promotes integrated usage of internal/external information, and aims to improve business/system efficiency, customer relations, and productivity of employees.

<Integration in presentation layer> <Integration in application layer><Integration in data layer>



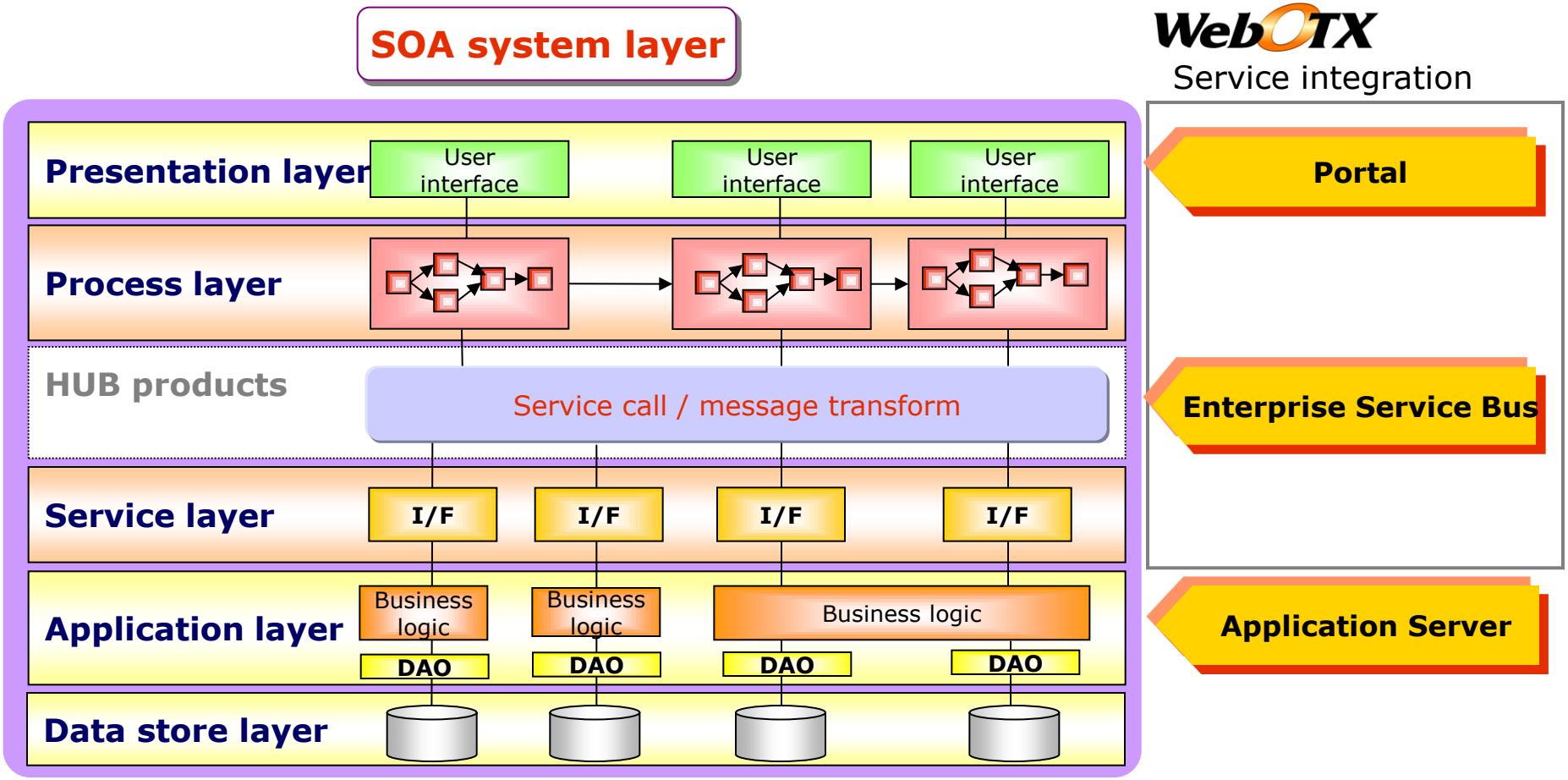
As other methods, there are data integration for BI/DWH, data migration, master management, data synchronization, etc.

(*)EII=Enterprise Information Integration

Service integration

Supports system configuration that is adaptable to change with SOA.

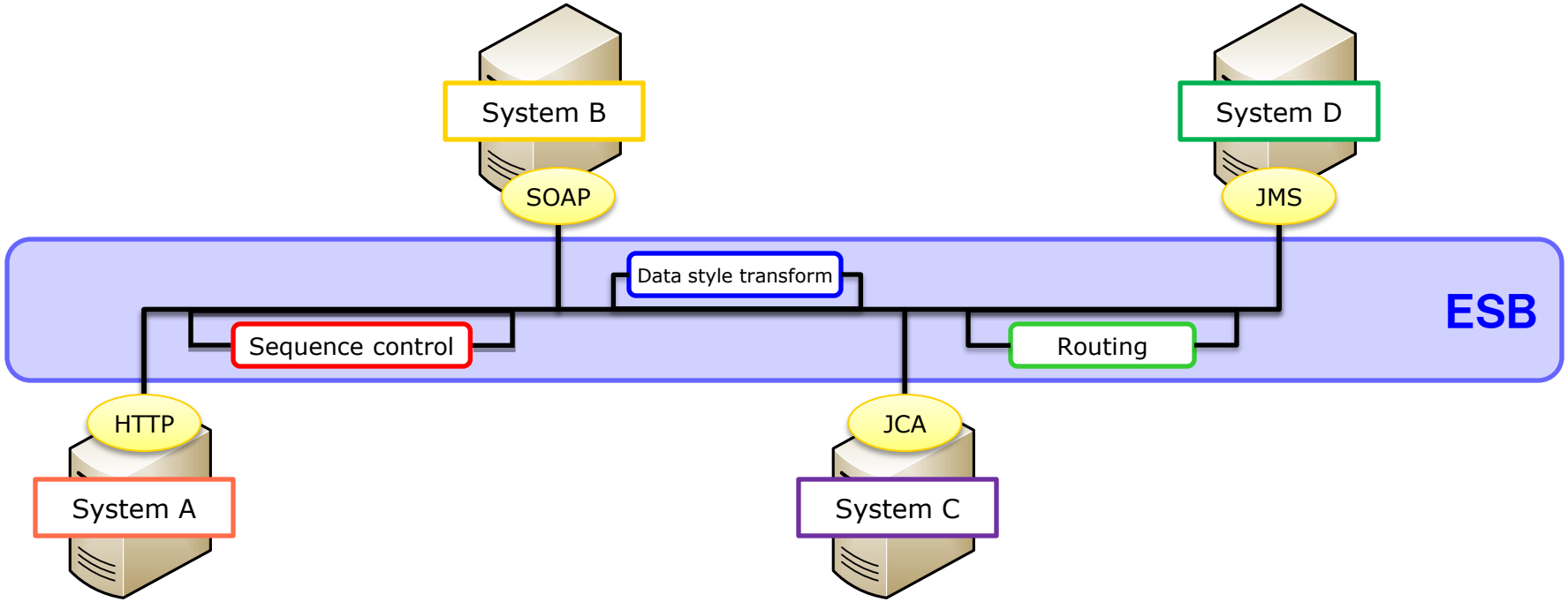
▼ Highly reliable platform to rapidly and flexibly supports business / system integration, and to rapidly adapt to business environment change.



2. WebOTX Enterprise Service Bus

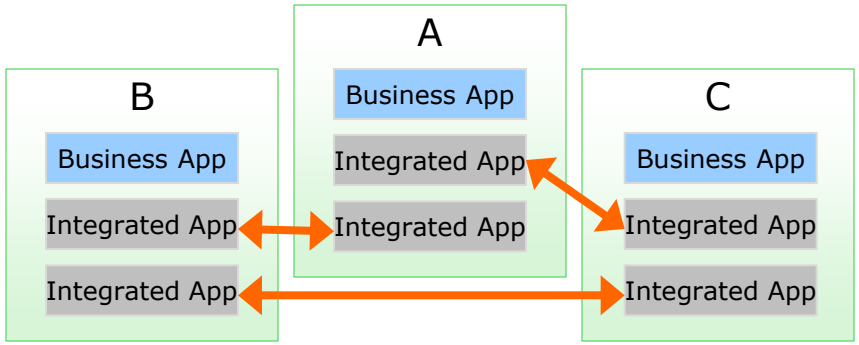
What is Enterprise Service Bus (ESB)?

- Technology and middleware for application integration
- Integration method based on message exchange of SOA
- Standard communication protocols such as HTTP, SOAP, JMS
- Synchronous / asynchronous integration by message routing / transform
- Loose coupling without affecting integrated application

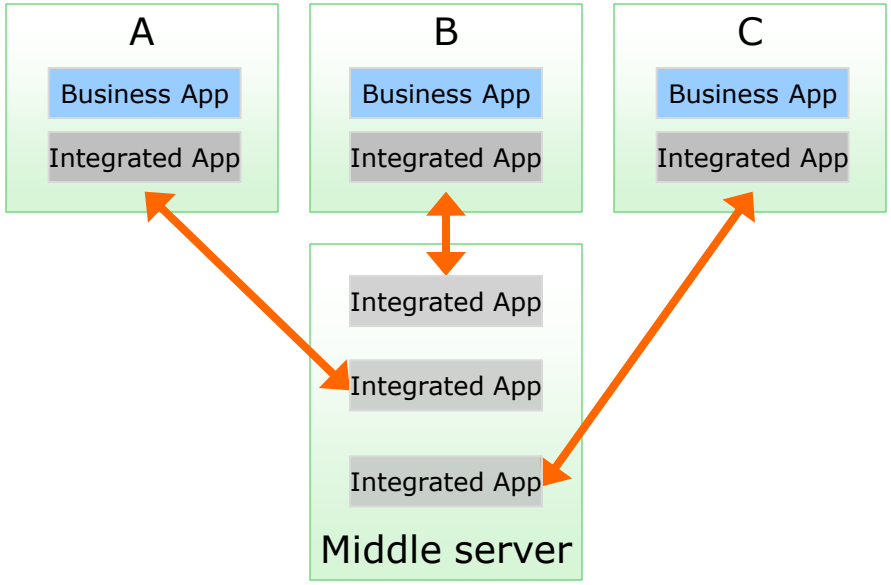


Conventional system/data integration

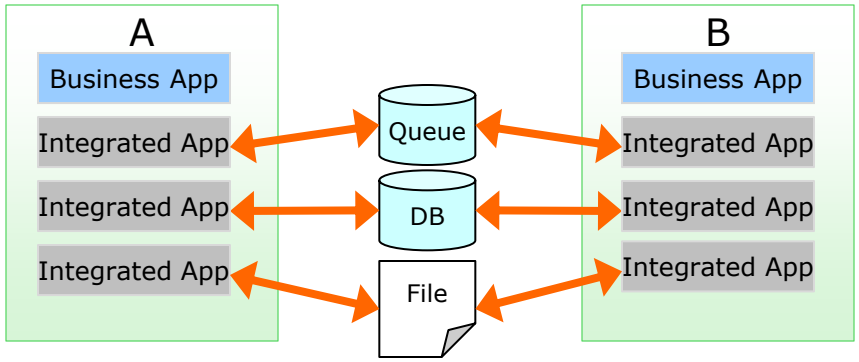
1. Direct integration between systems



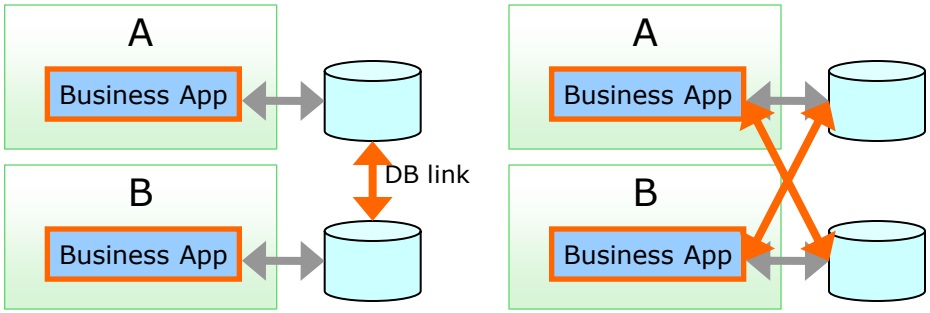
3. Integration using middle server



2. Integration using queue/ DB/ file between systems



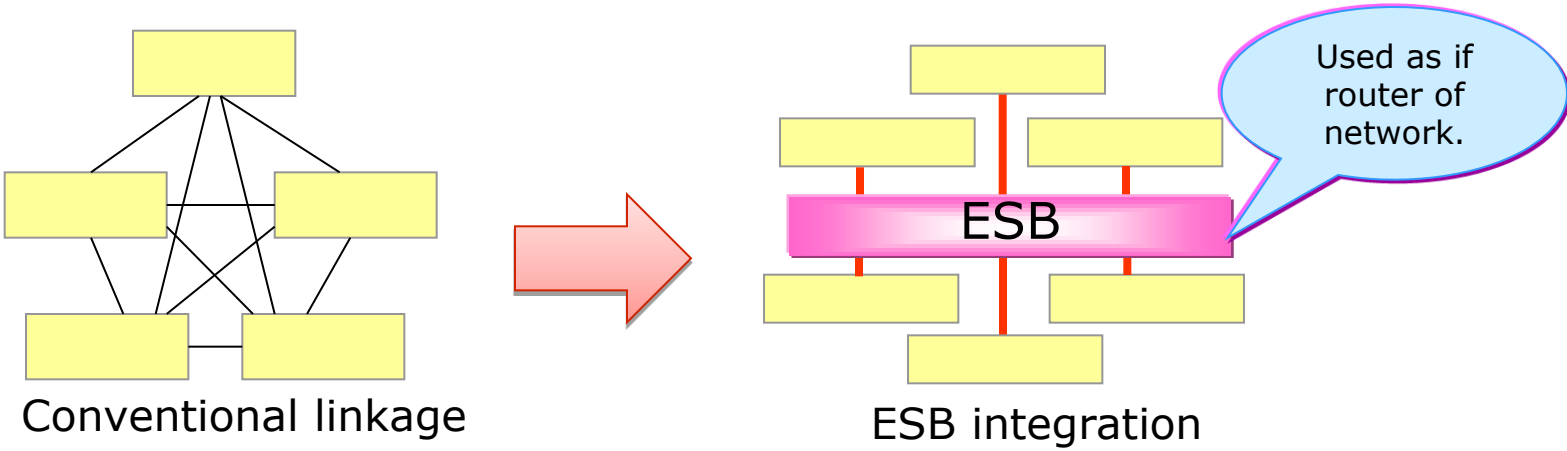
4. Integration mutually referring to each DB



Development/operation/support cost increases relative to integration number

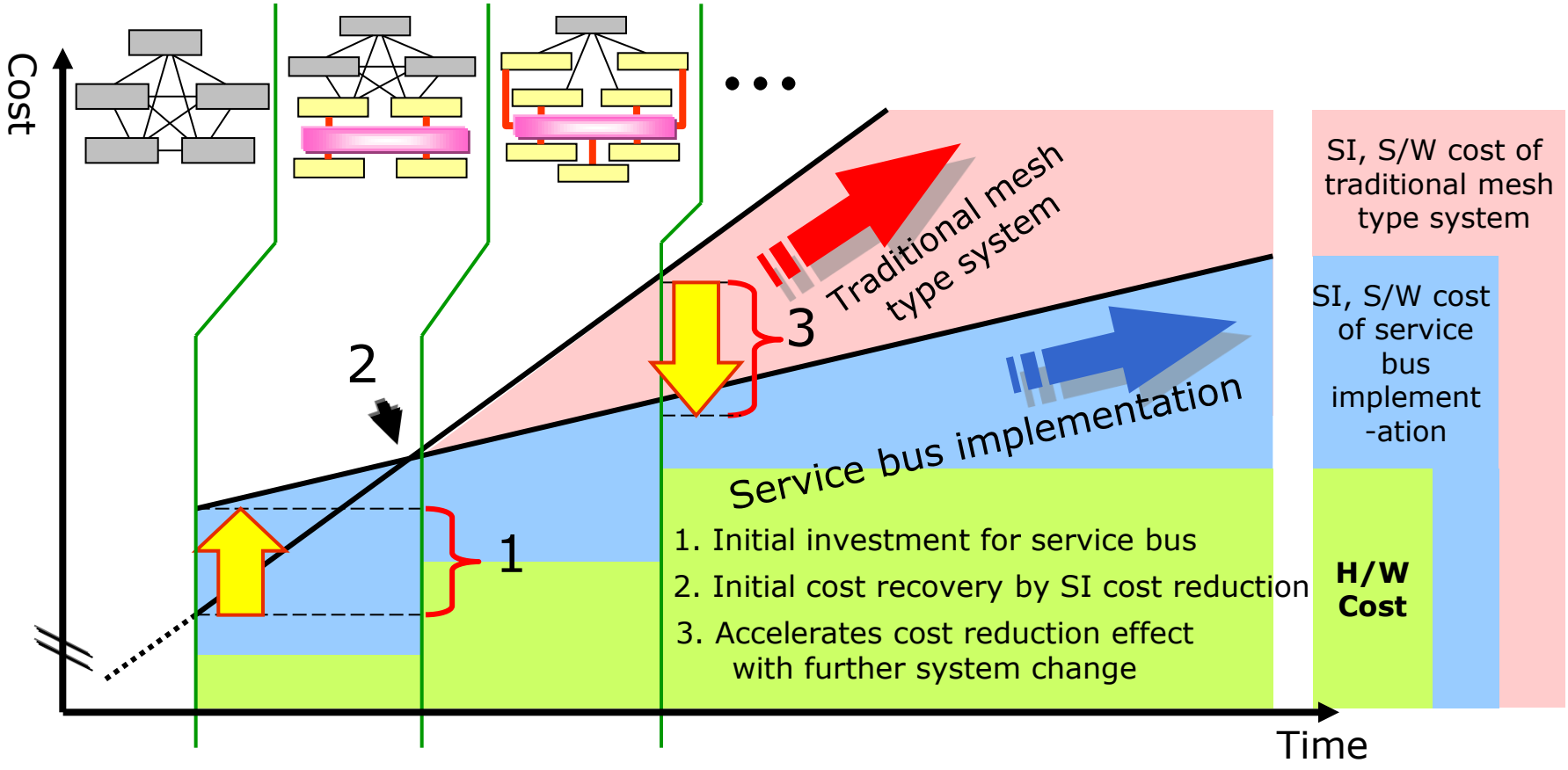
Advantages of ESB implementation

- Integration logic can be disconnected from business application system.
  - Coding and resource becomes unnecessary for Point to Point connection.
  - Enhances reusability of integration logic and maintenance.
- Easily enables system connection/disconnection, and realizes flexible integration.
- Absorbs difference of protocols among each systems.



Cost benefits of service bus

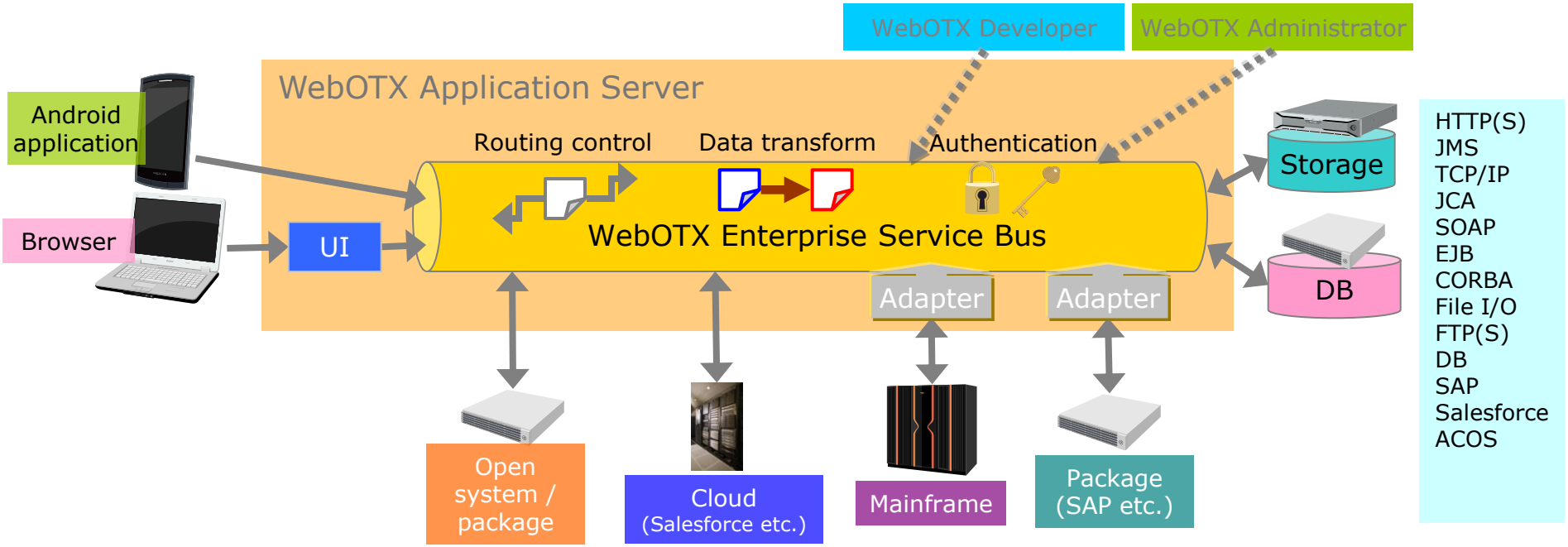
- Initial cost for ESB implementation is required, but compared to conventional integration method, cost can be reduced within the short time as integration number increases.



Reduces middle-long term cost in system change

What is WebOTX Enterprise Service Bus (WebOTX ESB)?

- Highly performed system & data integration platform with high reliability and open system.
- Enables secure integration of any system and resource, from existing legacy assets to latest cloud service.
- Realizes complicated routing control and data transform without programming.



WebOTX ESB features

High performance

- "FTP direct forwarding function" & "forwarding rate setting function" preventing ESB performance degradation during integration using big amount of data.
- NEC unique technology "ultrafast speed XSL transform function"

High reliability

- Load balancing in multi-process configuration and high speed automatic recovery from failure.
- Load balancing by path control corresponding to load balancer
- Delivery guarantee and advanced recovery in abnormal condition by try & error notification.
- Priority setting function for stable operation of mission-critical system integration during high load.

Flexibility

- Real time data integration with Salesforce without coding
- Seamless integration with existing assets such as ACOS and TPBASE etc.

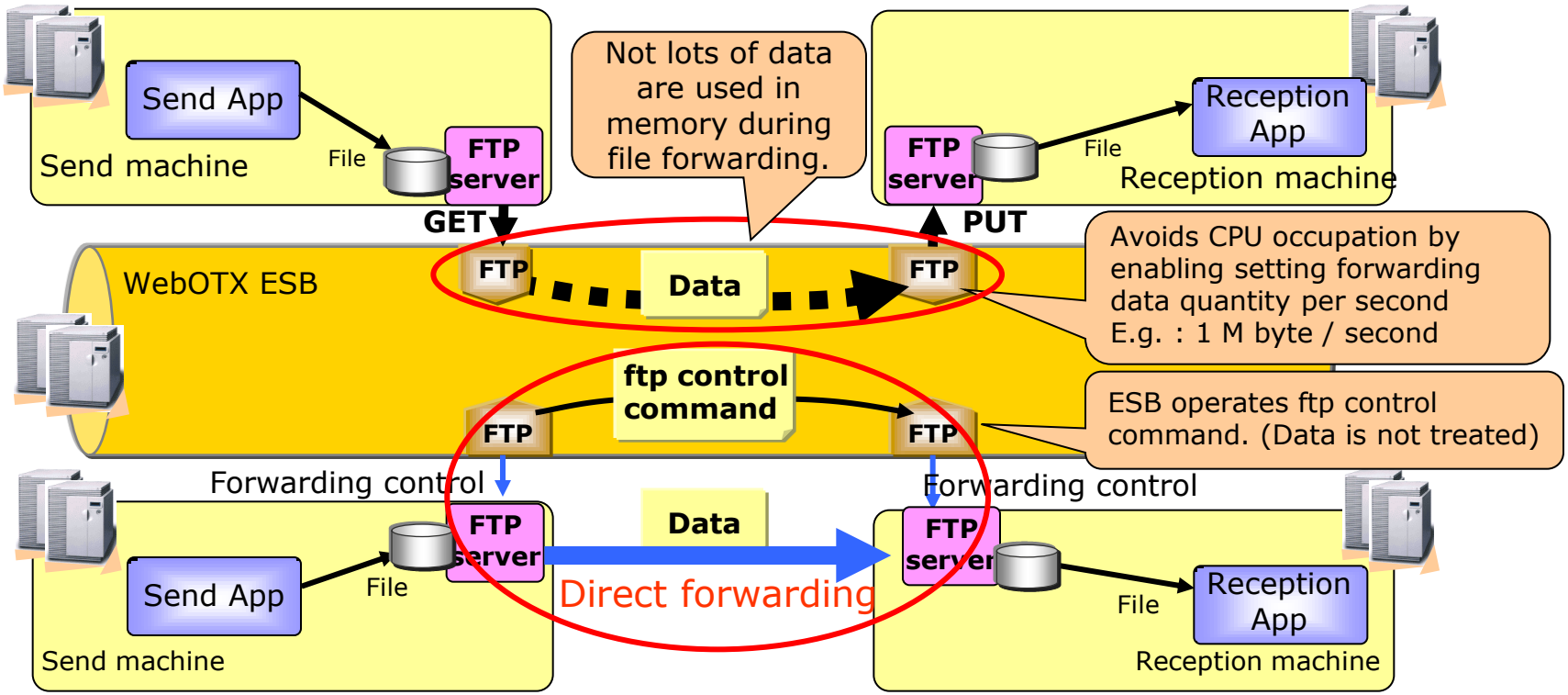
Operability

- Integrates multiple ESB easily. Operability is still same as single ESB.
- Integrates management of complicated authentication over several systems.

FTP direct forwarding & forwarding rate setting

Maintains ESB performance during integration by large volume data.

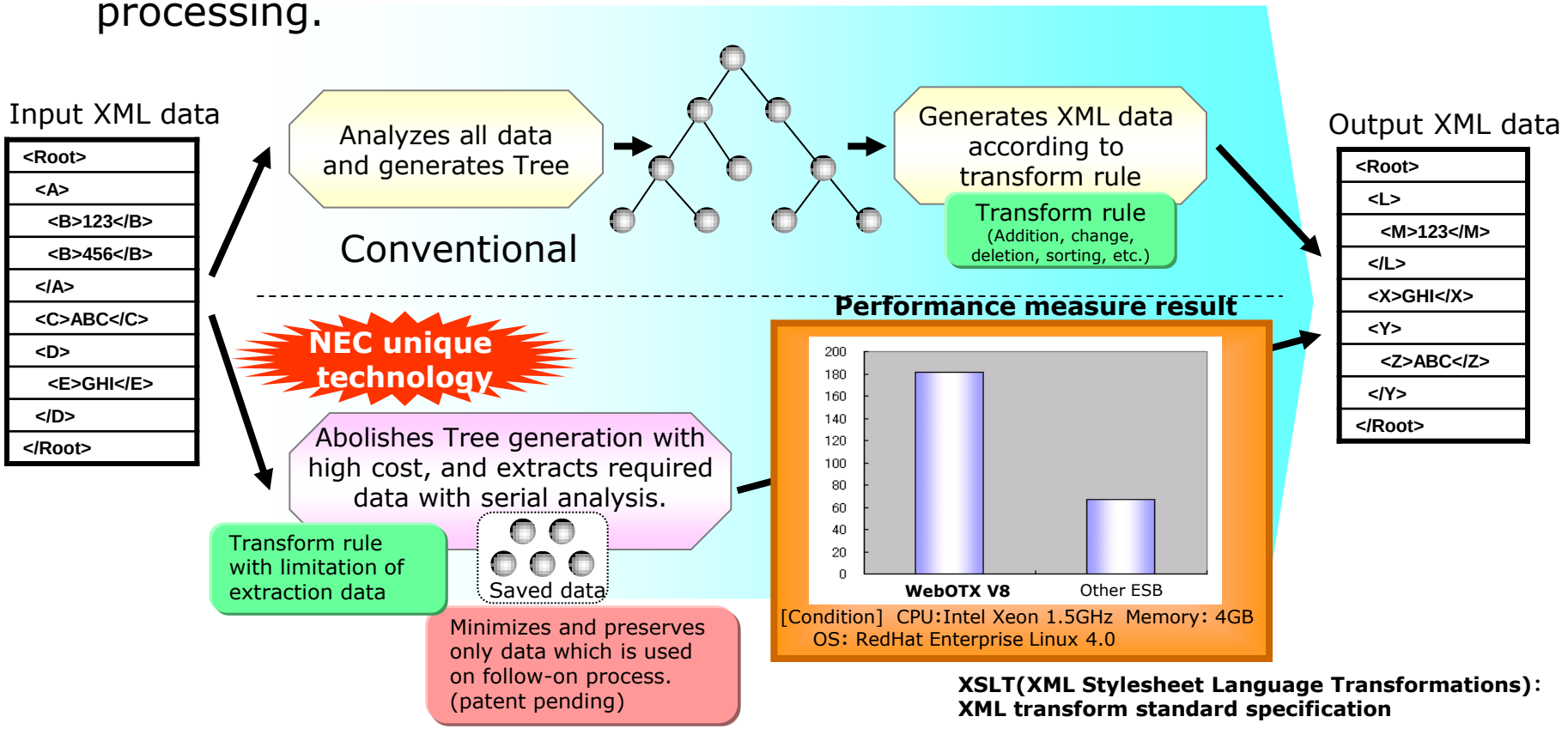
- FTP direct forwarding function
  ESB minimizes load to server by forwarding control command only.
- Forwarding rate setting function
  Enables to set up forwarding rate in ESB. This prevents running out of server resource for ESB all of a sudden, and realizes stable operation.



High speed XML transform

Realizes XSL transform processing in high performance with NEC unique XML analysis technology.

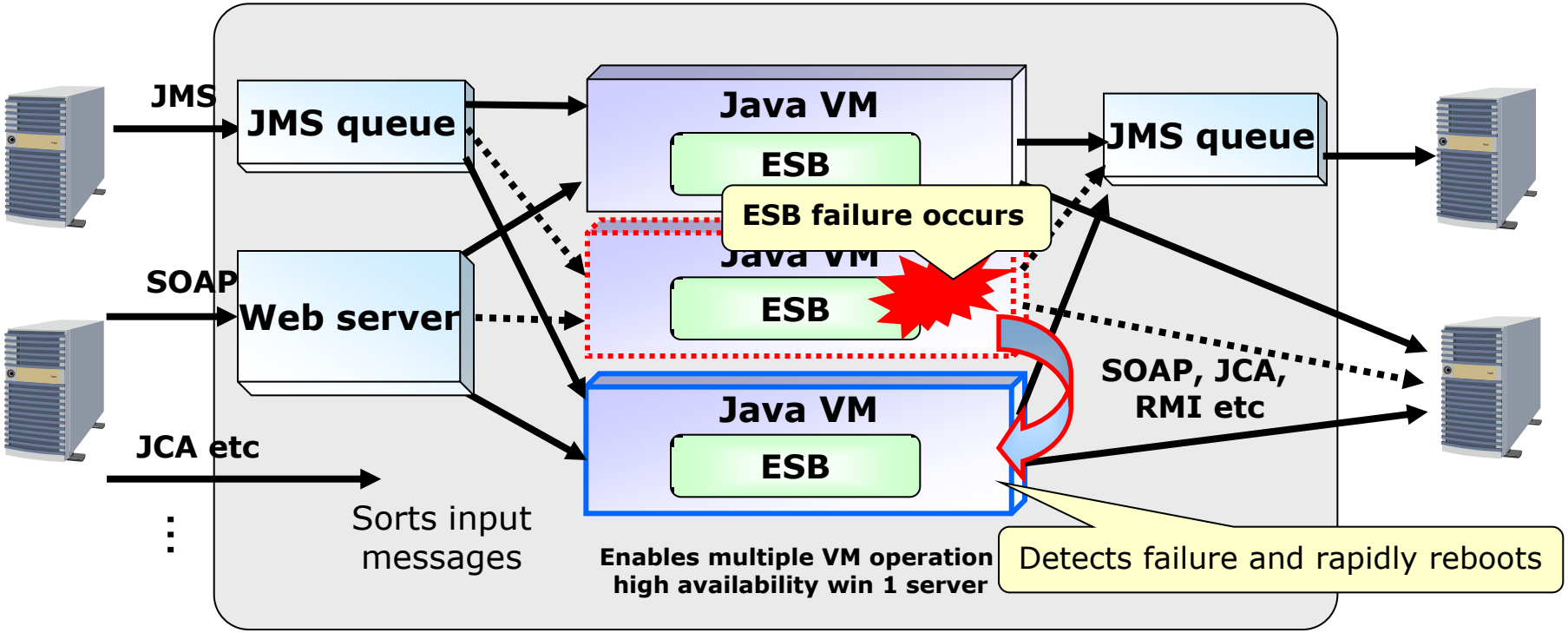
- XSLT compliant serial process high speed transform engine based on mechanism with stream processing not generating XML tree structure.
- Enables high speed by deleting saved data required for serial transform processing.



XSLT(XML Stylesheet Language Transformations): XML transform standard specification

Multi-process configuration

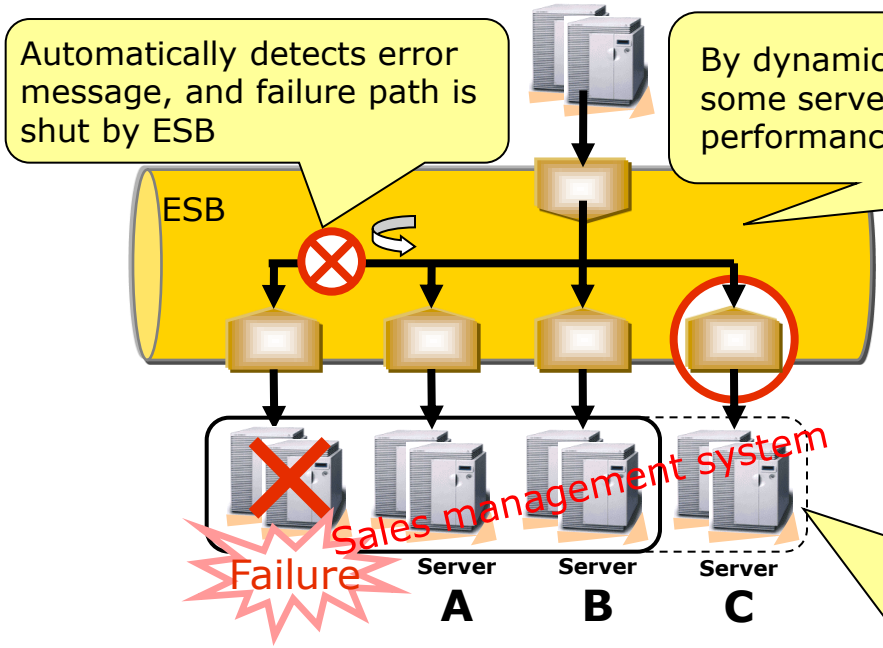
- Runs ESB in multiple process. [WebOTX unique highly reliable platform]
  - Detects failure of linked processing, and rapidly / automatically recovers.
  - Shuts the process during failure recovery, but realizes non-disruptive operation by distributed action in other processes.



* This feature can be enabled with WebOTX AS Foundation or higher.

Path control

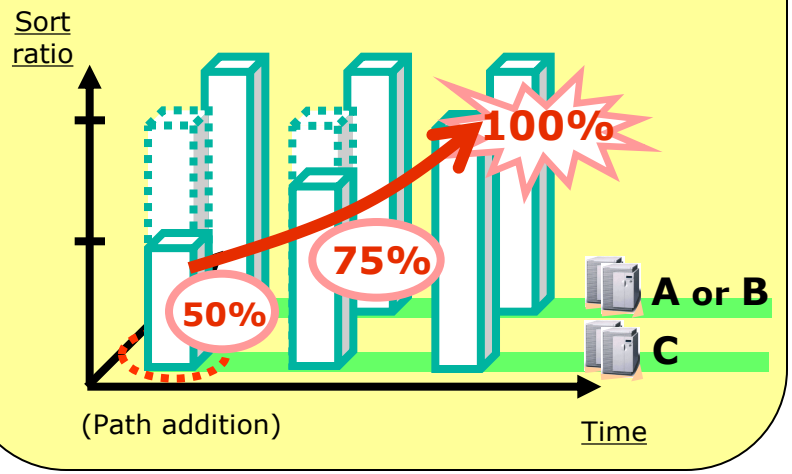
- In stead of load balancer, load balancing of duplicated service can be enabled with ESB. *1
- Flexible system operation enabled with dynamic addition / deletion of integrated system.
- Shuts partly in case of failure. Delivers to other services and improves availability of whole system.



*1 Software load balance function
- Weighting round robin load balancing
- act-standby

By dynamic path addition, during high load or system update in some server disruption, operation can be continued without performance degradation of whole system

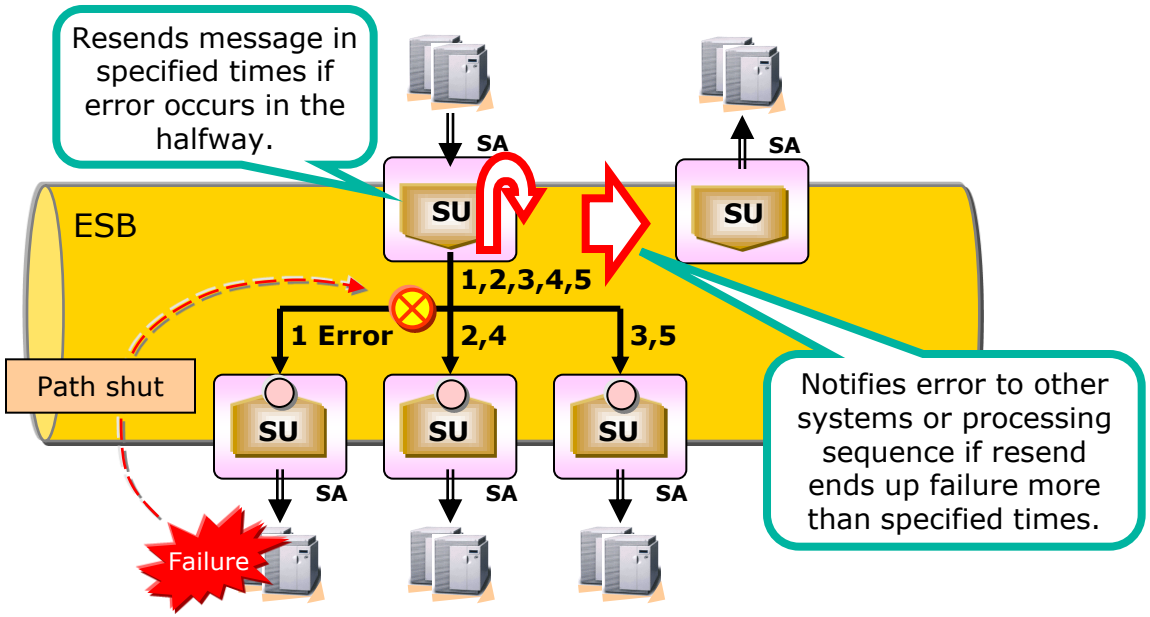
"Slow start function" in case of path addition. This prevents unstable service such as no response caused by sharp increase of load.



Retry & error notification

V8.4 New

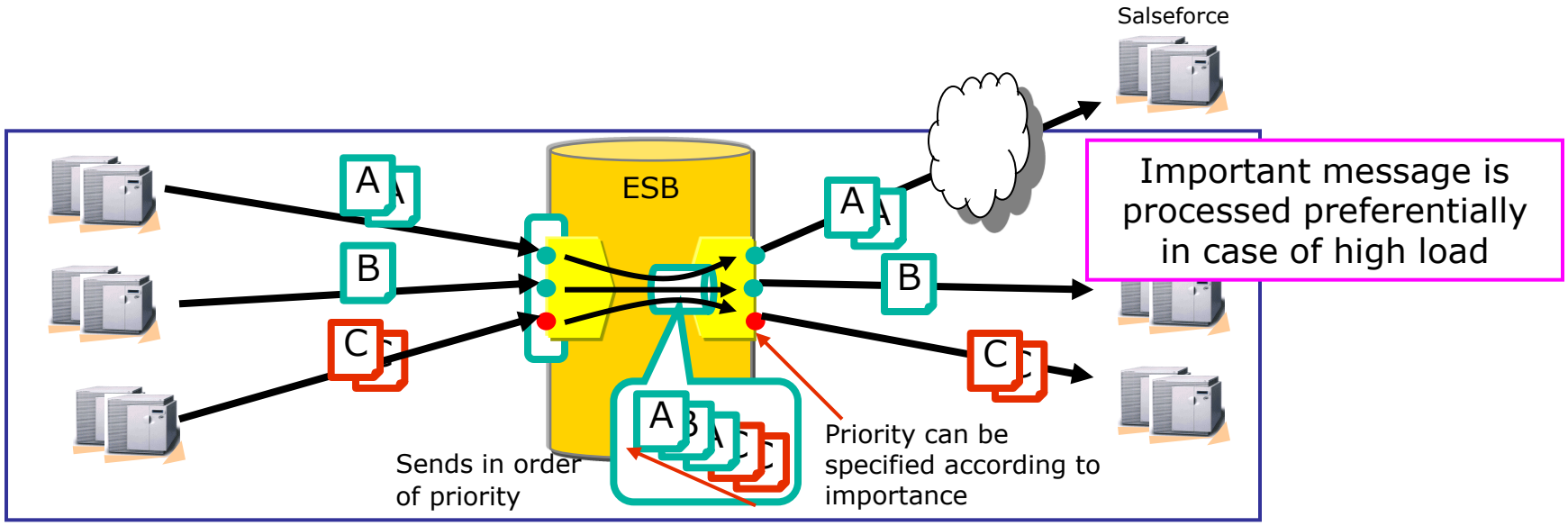
- Error retry function is deployed for sending message in specified times in case of abnormality. This realizes assured message delivery.
- Error notification function is deployed for automatically calling processing in case that retry failed. Post-processing during abnormal condition can be separated from normal condition.



Priority setting

V8.4 New

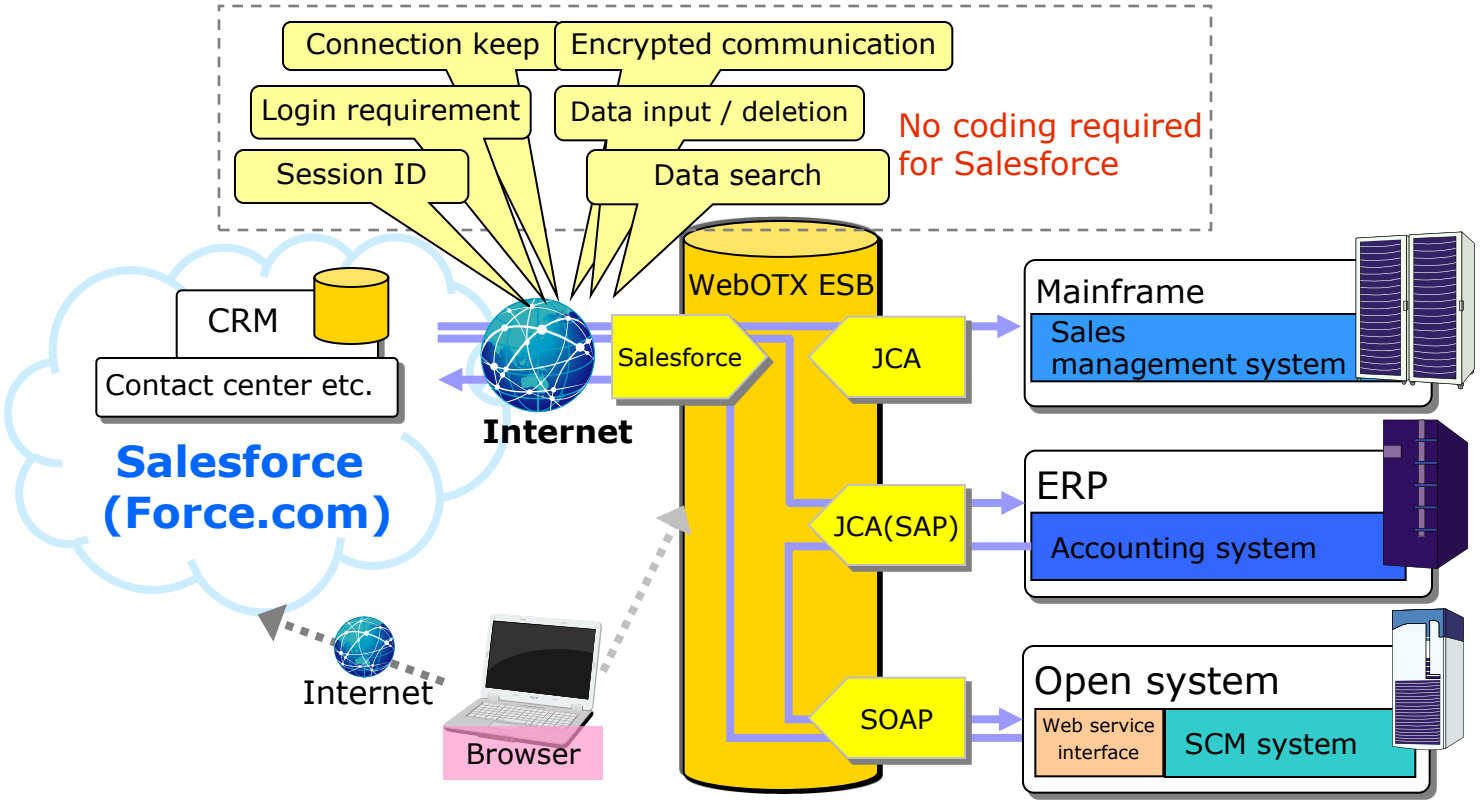
- Priority can be set up per integration target, and important message is routed preferentially.
- By setting up high priority on important job, this job can be processed in case of high load.



Salesforce

V8.4 New

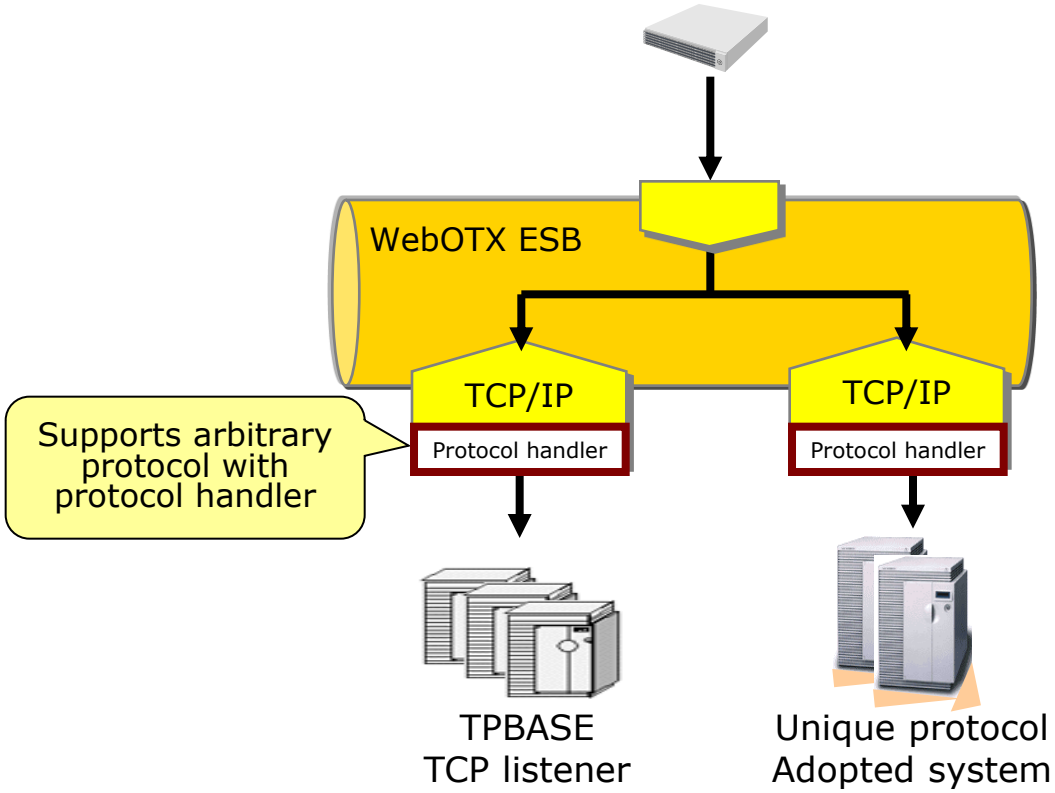
- Realizes seamless real time data integration between existing system and Salesforce.
  - Same data can be shared between existing system and Salesforce in real time. Prevents data unconformity.
  - Integration with Force.com can be realized without coding.



TCP/IP

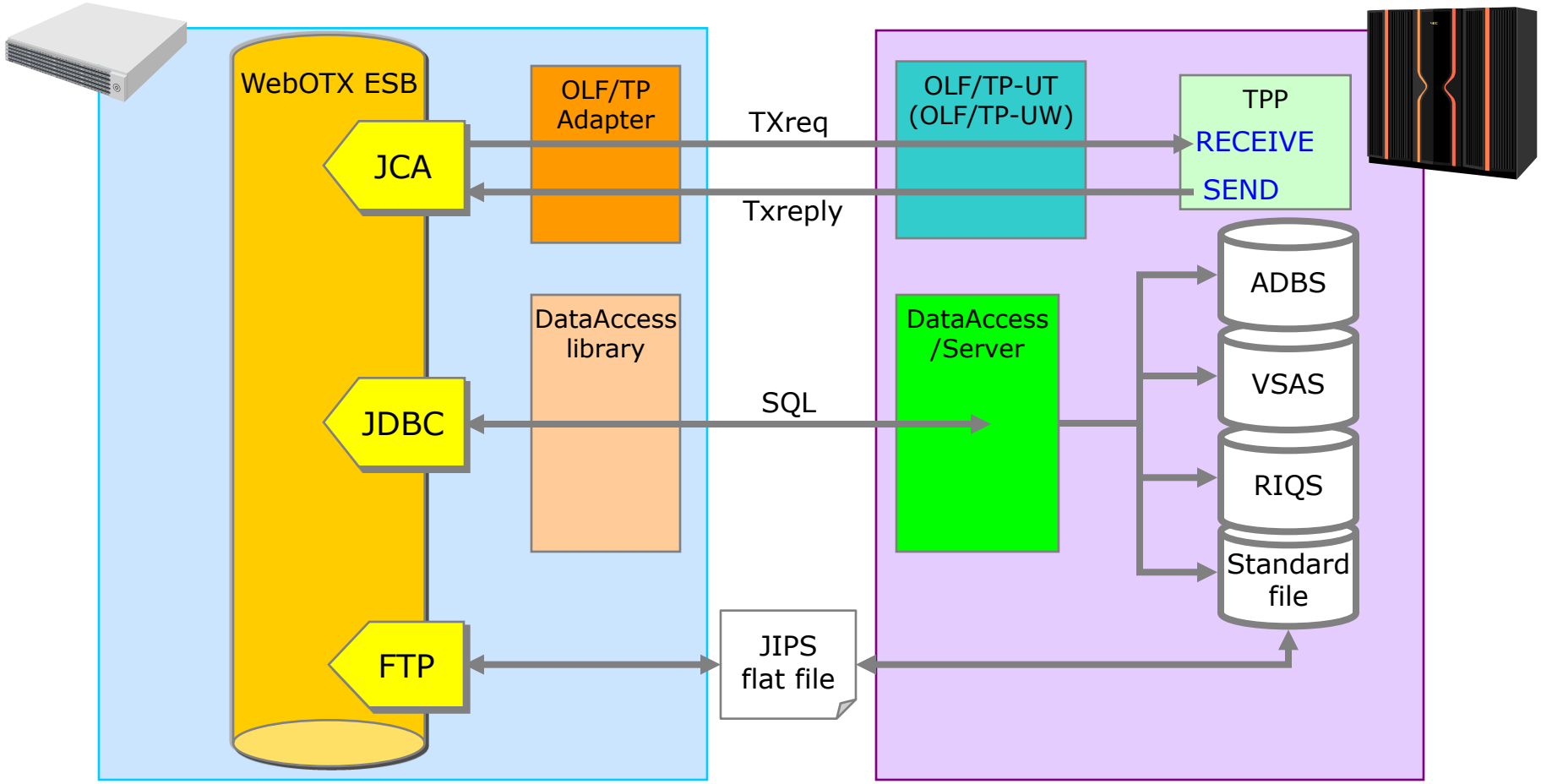
V8.4 New

- Realizes integration with system which adopts unique communication protocol.
- Realizes high speed integration while eliminating processing time of high level protocol.



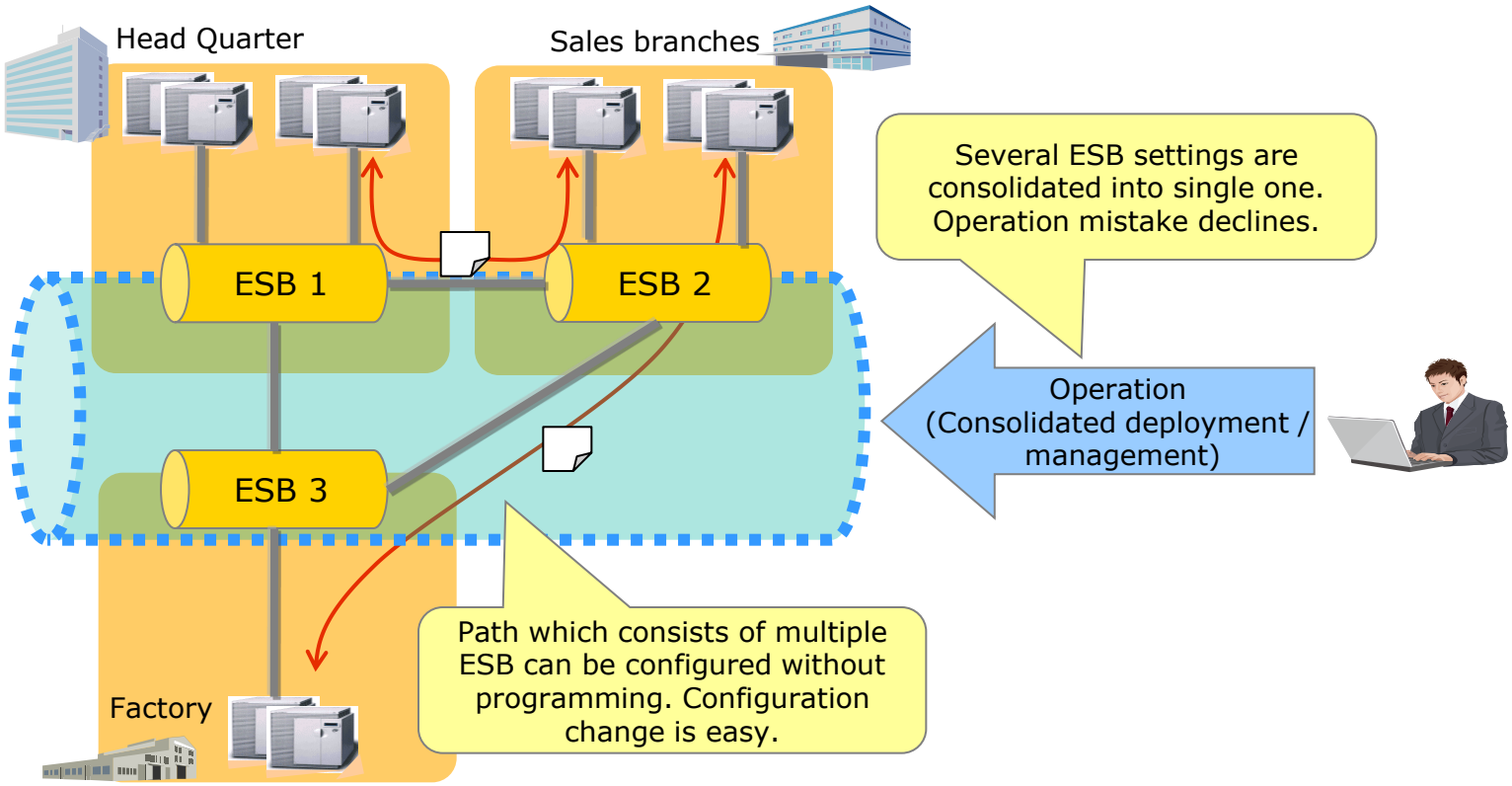
ACOS assets use

System / data integration of system / database / cloud service with ACOS / TPBASE existing assets and open technology.



Distributed ESB

In distributed ESB environment, from designing through operation, message transfer between ESB can be treated as a single ESB.

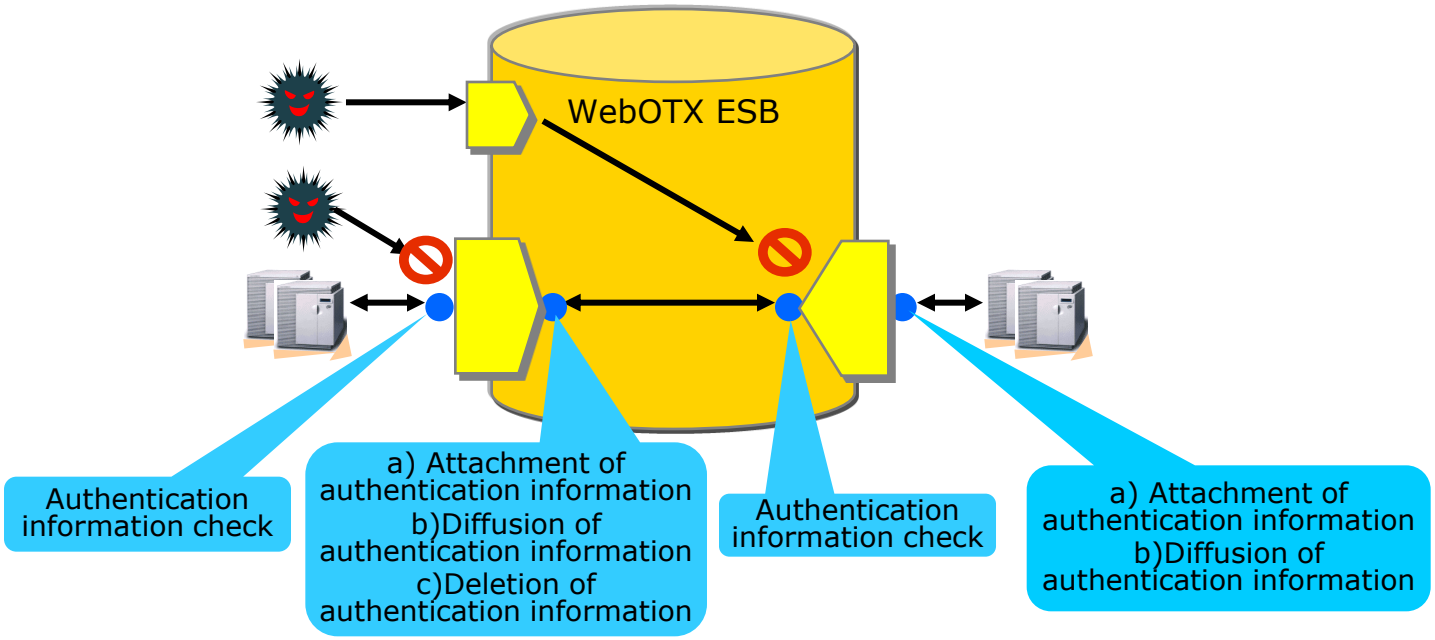


*** WebOTX AS Enterprise is required.**

Security

V8.4 New

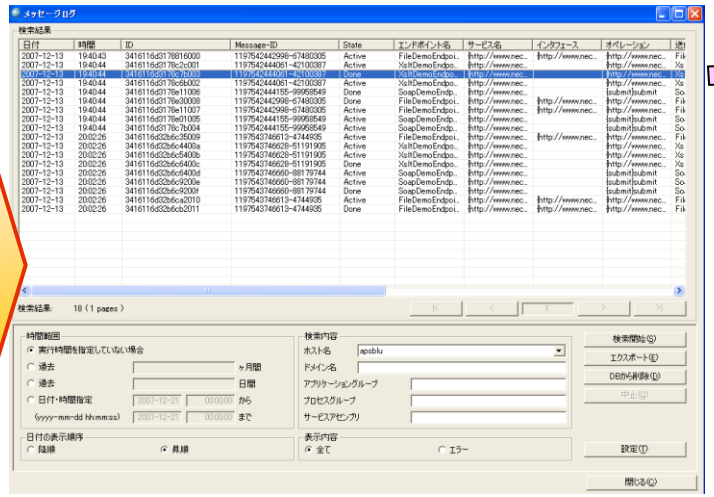
- Authenticates access to ESB, and protects system and resource connecting to ESB.
- Diffusion, attachment, etc. of authentication information can be finely controlled in entrance / exit of ESB.
- Deploys authentication system inside ESB, and prevents invalid utilization of unexpected route and system.
- Supports xAuth which is authentication method between systems based on OAuth specification.



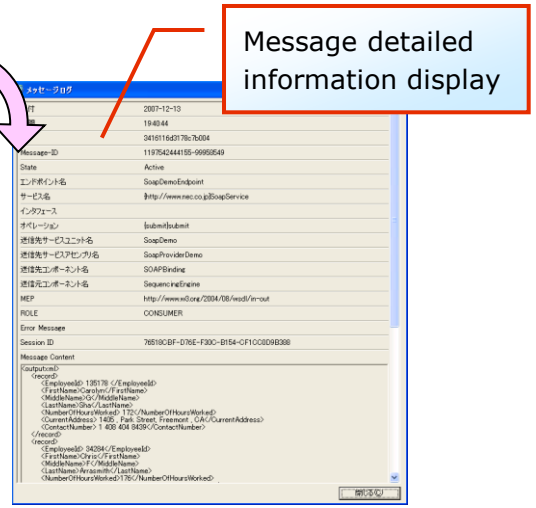
Message trace

- Deploys message trace function to record message passing ESB in files or databases.
- Effective for failure analysis, business analysis, and internal control, etc.
- If data are recorded in database, key search of message type, sender, receiver, time, etc. through communication record by using WebOTX Administrator(*) is enabled.

Specifies time, type, etc. and search message. Analyzes related message flow



Message search window
(WebOTX Administrator)

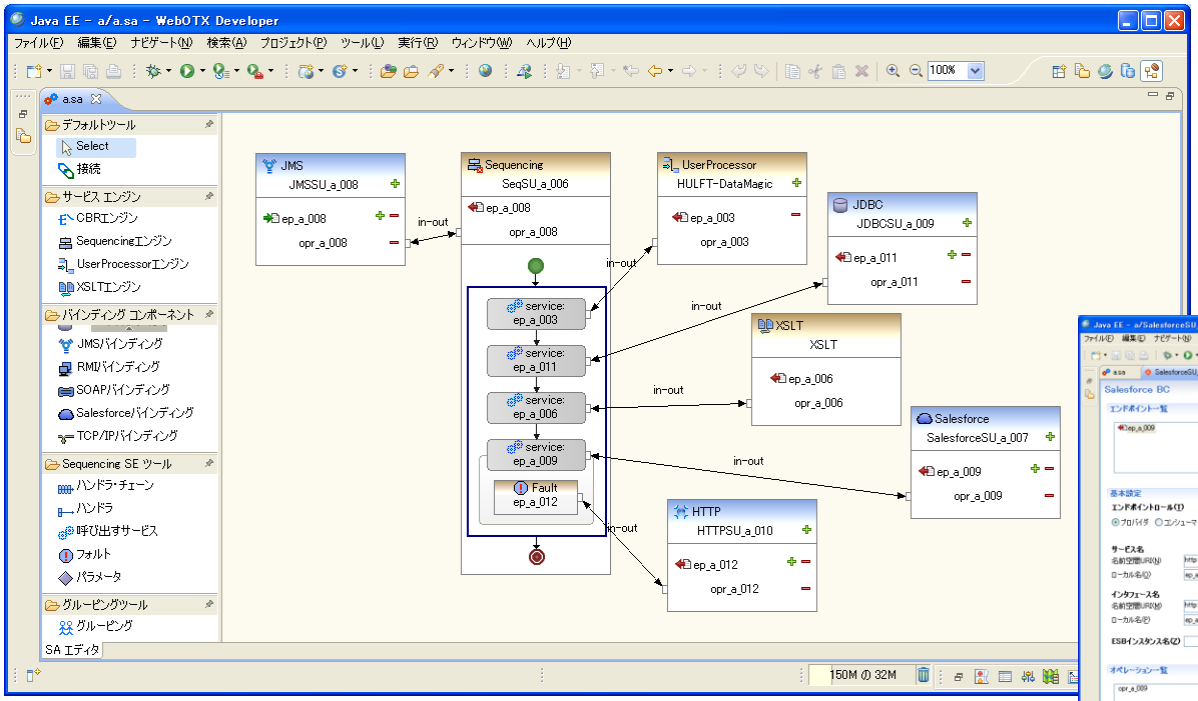


(*)WebOTX Administrator is common administration GUI tool of WebOTX series

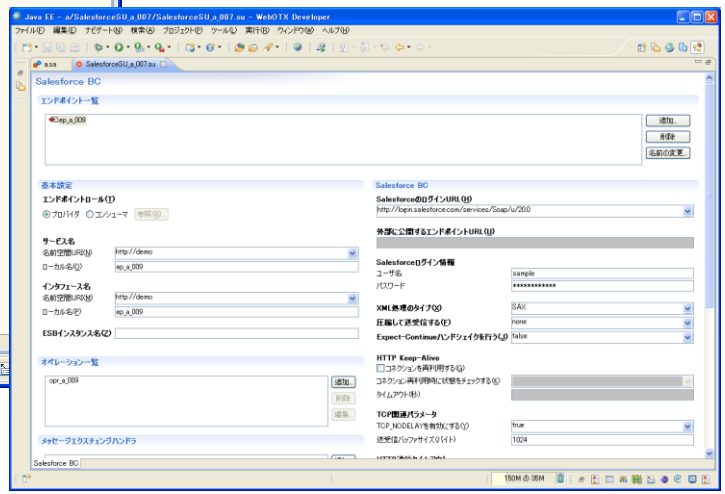
Routing setting [WebOTX Developer]

Supports system / data integration setting by GUI tool

- Deploys virtualized icon of system, resource, and cloud service, and writes setting and lines in setting window.



Message routing setting window
(WebOTX Developer)



System connection information setting window
(WebOTX Developer)

XML mapping [WebOTX Developer]

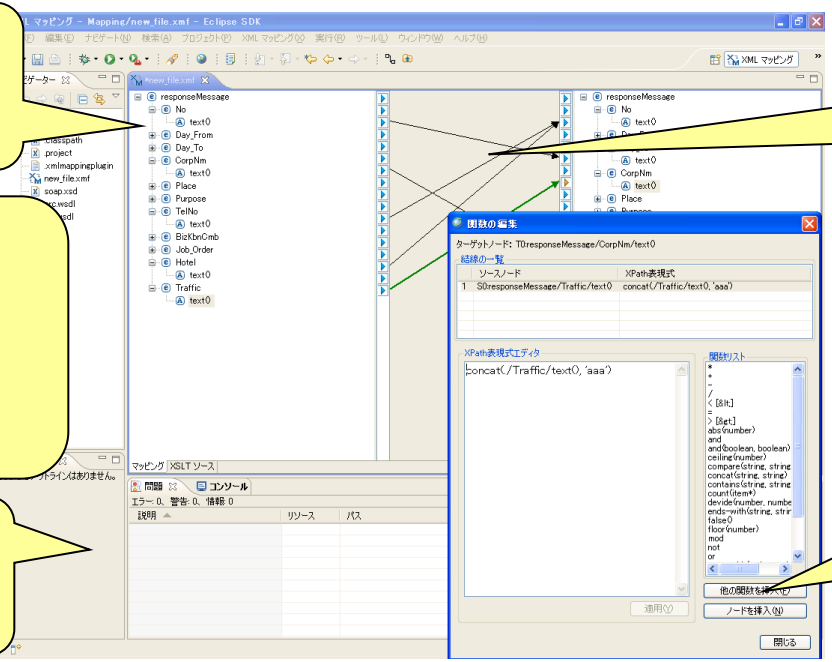
Supports XSL file creation with GUI tool

- Supports WSDL, XML Schema, DTD, and XML as data structure file.
- Provides test execution function for defining while confirming transform result.
- Provides dialog to describe logic for complicated data transform

Enables to directly call from connection definition editor of ESB

- WSDL file
- XSD file
- DTD file
-XML data file
Above files can be used as data structure

Enables to define while confirming by test execution function



Data mapping can be done by relating with Drag & Drop operation

Additional XPath Functions can enhance the feature.

WebOTX ESB product information

Product name	Product detail	Type
WebOTX Media V8.4	Installation media	
WebOTX Enterprise Service Bus V8.4	WebOTX ESB execution license	License
WebOTX Enterprise Service Bus CU License V8.4	WebOTX ESB additional CU license	License
WebOTX Developer V8.4	WebOTX development environment license	License
WebOTX Administrator V8.4	WebOTX administration environment license	License

(*1) In virtual environment, number of license equal to virtual environment is required.
(*2) Please consult if CPU with more than 8 core in processer package is used.
(*3) WebOTX ESB includes equivalent of WebOTX AS Express. ESB can also be used with WebOTX AS Foundation/Standard/Enterprise.

Physical CPU number	Multiple core(2～8 core)	-	1	2	3	4	5～8	9～16	17～32	33 or more
	Single core	1	2	3～4	5～6	7～8	9～16	17～32	33～64	65 or more
Required CU license number		0	1	2	4	6	8	16	32	Consult us

E.g.) In case installation is done to machine with 4physical CPU (each one is quad core)
Multiple core CPU x 4, so required CU license is 6 from the table. The result is following.
WebOTX Enterprise Service Bus x 1
WebOTX Enterprise Service Bus CU License x 6

Thank You

Application Service Platform for the age of cloud-computing

For more product information & request for trial license,
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For more information, feel free to contact us - global@soft.jp.nec.com


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