WebSphere Commerce
Sterling Order Management Integration

Jan 2014

Agenda

- High Level Overview

- Sample Use Cases

- Technical Overview of Flows

- ESB Independent Integration

- Customization Examples and Extension Points available

- Performance Benchmark

▪ High Level Overview

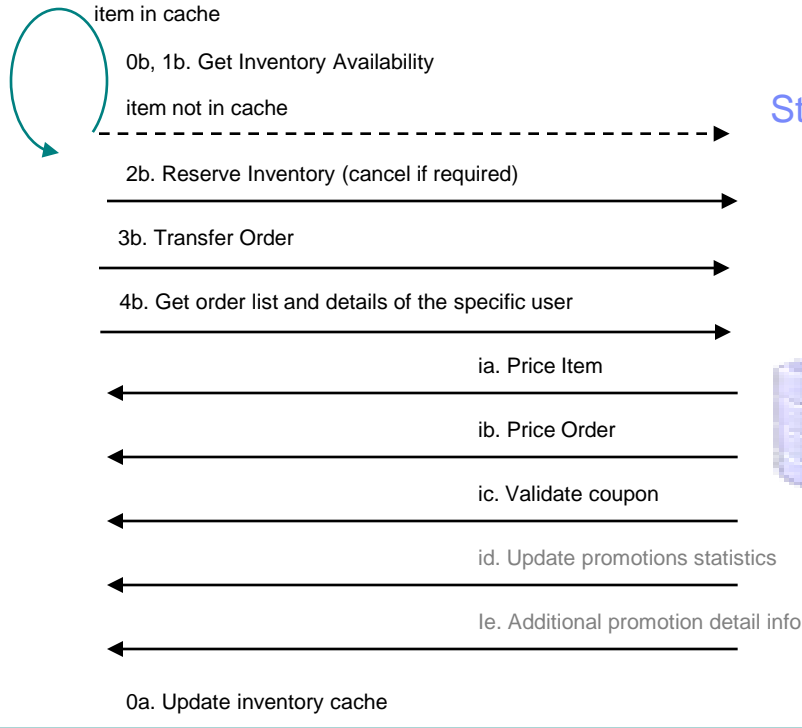# Integration scenarios – high level functional flow

Web Store

Call Center

Black - Q1
Gray – FP1
- All exist today with WESB

0. Product display

1. Add Item to Shopping Cart

2. Prepare Cart for Submission

3. Submit Cart

4. View order

i. Place/modify/cancel order on behalf of shopper

item in cache

0b, 1b. Get Inventory Availability

item not in cache

WebSphere Commerce

Sterling OM

2b. Reserve Inventory (cancel if required)

3b. Transfer Order

4b. Get order list and details of the specific user

ia. Price Item

ib. Price Order

ic. Validate coupon

id. Update promotions statistics

Ie. Additional promotion detail info

0a. Update inventory cache

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▪ Sample Use Cases

- *Scenario 1 Inventory Visibility*
- *Scenario 2 Shopper places order online and calls Call Center to add line*
- *Scenario 3 Shopper calls Call Center to place order*
- *Scenario 4 Shopper places order online for store pick up and calls Call Center to add item*

Scenario 1: Inventory Visibility in Storefront

Inventory availability displayed as shopper browses catalog
– For performance reasons, inventory should be cached on WC side
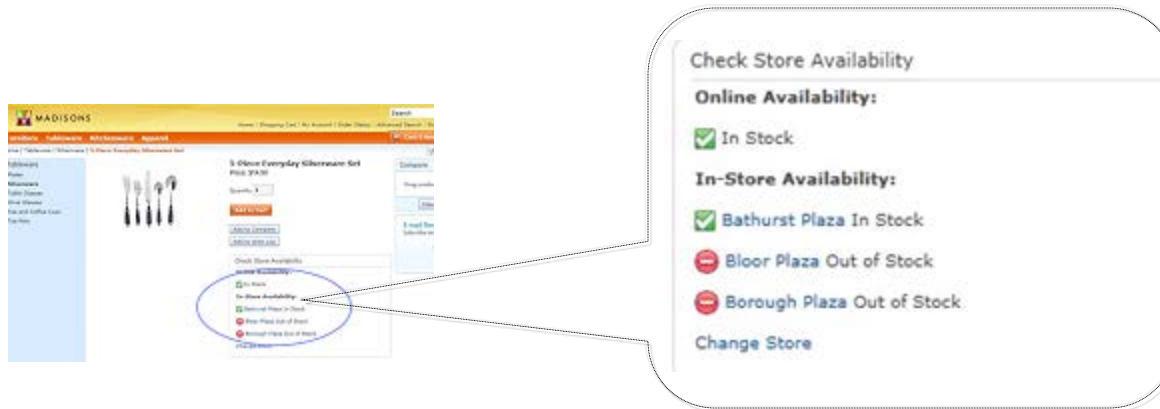
Inventory in WC can be configured

1. To be persisted in the WC db

2. Cached in memory – using dynacache or WXS

3. Combination of 1 and 2

Scenario 1: Inventory Visibility in Storefront

Inventory push/pull mechanisms to populate inventory cache can be used

1. **Inventory push** – initiated from Sterling OM side using RTAM
   1. Full sync - entire catalog inventory synchronized
      - Expected to be scheduled during off peak hours

   2. Activity based - inventory goes above or below a threshold
      - inventory level changes (additional inventory available)
      - inventory falls under specified threshold

Sterling OM

WebSphere
Commerce

Update inventory cache

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Scenario 1: Inventory Visibility in Storefront

2. **Inventory pull** – initiated from WC store front
    - Used to fetch and display the inventory availability of the item online and in-store
        - Online store availability: after inventory pull, WC cache entry is updated
        - Physical store availability: inventory is not cached locally as inventory is expected to be more volatile
    - Can setup threshold in WC to indicate when cached value is considered expired
    - If OM is down, assume inventory is always available

WebSphere
Commerce

Get Inventory Availability (item not in cache)

Sterling OM

Both mechanisms (push/pull) can be used separately or together, depending on business requirements

Scenario 2: Shopper places order online and calls Call Center to add line

Scenario details

1. Shopper places order online
   - Browse, identify item – *inventory availability displayed*
   - Inventory availability in OMS
   - Add item to cart ($5 off orders > $50)
   - Checkout and submit order – *inventory reservation*

2. Shopper calls Call Centre to modify order (add line)
   - CSR searches order (based on email)
   - CSR finds item – *item price*
   - CSR adds item to order – *order price*
     - crosses threshold – new promo applied from WC (20% of $100)

3. Shopper views order online after change – *get order list and details*

Scenario 2: Shopper places order online

* Browse, inventory availability
* Inventory availability in OMS

KitchenCraft Sous Chef Line Knife Set
SKU: HKT030_300201

$92.00

Five piece knife set to meet all your food preparation needs.

Blade material: Stainless steel
Handle material: Molded plastic

Quantity 1

Add to Cart

Add to Wish List ▼

Available Online
✔ In-Stock
Available In-Store

Select Store

Item Information 👤 🏠 📖 🎃 🧂   📄 Adjust Inventory 📄 ATP Options

Organization Code	MadisonsBase
Item ID	HKT030_300201
Unit Of Measure	EACH
Description	This five piece kitchen cutting set consists of four knives, kitchen scissors, and a wooden butcher's block. The blades are superbly crafted for balance making this set perfect for the budding chef.
Lead Days	0
Expired Supply	0.00

Product Class
Tracked Everywhere Yes

Processing Days 0

○ Consider All Nodes   ● Distribution Group   DG1 ▼

Segmentation

○ All Inventory   ● Unsegmented Inventory

○ Consider Segment Type   [▼]   Segment [   ]

Horizon End Date   10/17/2013 📅   [Go]

Supply : 111.00

	Supply Type	Organization Code	Quantity
■	Onhand	MadisonsBase	111.00

100%

Demand : 2.00

	Demand Type	Organization Code	Quantity
■	Reserved	MadisonsBase	2.00

100%

Available : 109.00

Scenario 2: Shopper places order online

item added to cart, cart qualifies for $5 off orders > $50

Scenario 2: Shopper places order online

* reservation call made (proceed to order summary)

Scenario 2: Shopper places order online

Inventory Availability OMS after reservation made

Inventory Summary

Scenario 2: Shopper places order online

Submit Order

Thank you for your order!

You will receive a confirmation by e-mail to verify your order.

Order number:22029

Order date: October 29, 2013

[Continue Shopping]

Shipping Information

Shipping Address:
ewan@yahoo.com

Tennent
3 Lower Falls Rd
Falmouth Alabama
United States 04105
ewan@yahoo.com

Ship as Complete: Yes

Shipping Method: Mail

Product		Availability	Qty	Each	Total
	KitchenCraft Sous Chef Line Knife Set SKU: HKT030_300201 Blade material : Stainless steel Handle material : Molded plastic	In-Stock	1	$92.00	$92.00

Order Subtotal:	$92.00
🛈 Discount:	($5.00)
Tax:	$0.00
Shipping:	$0.00
Shipping Tax:	$0.00
Order Total:	**$87.00**

Scenario 2: Shopper calls Call Center to add line

* *CSR searches for order in Call Center*

Scenario 2: Shopper calls Call Center to add line

* CSR views order details

Scenario 2: Shopper calls Call Center to add line

*CSR adds item – Order qualifies for "Save 20% on orders over $100.00

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Scenario 2: Shopper calls Call Center to add line

Order Pricing Summary from Call Center

Order Pricing Summary

Line Number	Product	Quantity	Unit Price
1	KitchenCraft Sous Chef Line Knife Set (HKT030_300201)	1.0000 Each	$92.00
2	KitchenCraft Bamboo Cutting Board (HKT030_300701)	1.0000 Each	$46.00

Line Total   Add/Modify

Extended price:	$92.00
20% off Orders of $ 100.	
715839437	($18.40)
Sales Tax	$0.00
Shipping Tax	$0.00
Total:	$73.60

Header summary   Add/Modify

There are no adjustments.

Total:	$0.00

Pricing summary

Subtotal:	$138.00
Adjustments:	($27.60)
Shipping charges:	$0.00
Taxes:	$0.00
Total:	$110.40

Scenario 2: Shopper views updated order from Storefront

My Account | Order History

	Order History				
SETTINGS	**Order Number**	**Order Date**	**Status**	**Total Price**	
Personal Information	22036	October 29, 2013	Order transferred to fulfillment	$92.00	Re-Order
My Address Book					
Quick Checkout Profile	Details				
WISH LISTS	21002	October 25, 2013	Order transferred to fulfillment	$87.00	Re-Order
Personal Wish List	Details				
MY ORDERS	19001	October 25, 2013	Order transferred to fulfillment	$325.80	Re-Order
Order History	Details				
Recurring Orders					
Subscriptions	22029	October 29, 2013	Order processing	$110.40	Re-Order
MY COUPONS	Details				

Scenario 3: Shopper calls Call Center to place order
*Item with free gift and applies coupon

Scenario details

1. Shopper calls Call Centre to place order
   - CSR finds item – *item price*
   - CSR adds item to order – *order price*
     - Free gift promo applied
     - Shopper provides Coupon code to CSR for $10.00 off order

2. Shopper views order online

Scenario 3: Shopper calls Call Center to place order

WC free gift promotion

Manage Promotion	Descriptions	References

▽ **Purchase Condition and Reward**

*Target payment type: Any payment type ▼

Site-wide promotion ⓘ ☐

Catalog entries for "X" ⓘ

* Type	Store	* Code	Name	Exclusion
⊪⊕	Extended Sites Catalog Asset Store	HKT030_300701	KitchenCraft Bamboo Cutting Board	☐

0 of 1 selected

Attributes of catalog entries for "X" ⓘ

* Attribute Name	* Data Type	* Matching Rule	* Value

0 of 0 selected

*Minimum purchase (quantity): 1

*Free gift catalog entry "Y" ⓘ

* Type	Store	* Code	Name
⊪⊕	Extended Sites Catalog Asset Store	HKT030_300901	Cuisine Warmth Pot Holder

0 of 1 selected

*Quantity to give for free: 1

Scenario 3: Shopper calls Call Center to place order

CSR views item

Scenario 3: Shopper calls Call Center to place order

* Free Gift automatically added on adding line

Free Gift Line

Scenario 3: Shopper calls Call Center to place order

* CSR applies Coupon Code

Scenario 4: Shopper places order online for Store Pick up Calls Call Center to add an Item

Scenario details

1. Shopper places order online for pick up in store
    - Browse, identify and add to cart item – *inventory availability displayed, direct call*
    - Checkout (BOPIS)– *inventory reservation for item*
    - Submit order

2. Shopper calls Call Centre to modify order (change item)

    - CSR searches order (based on order #)
    - CSR adds new item – *order price*

Scenario 4: Shopper places order online for Store Pick

Shopping Cart | Store Selection | Address | **Shipping & Billing Method** | Order Summary

Shipping Information

Your items will be picked up at the following location:

Calgary Mall
1025 Cameron Ave SW
Calgary Alberta
Canada T2T 0K4
367.666.6666

Change store

Product			Availability	Qty	Each	Total
Modern Houseware Glass Base Table Lamp SKU: HLG028_281001			In-Stock	1	$40.00	$40.00

Move to Wish List ▾

✕ Remove

Promotional code [   ] Apply

Order Subtotal:	$40.00
Discount:	$0.00
Tax:	$0.00
Shipping:	$0.00
Shipping Tax:	$0.00
Order Total:	**$40.00**

Scenario 4: Shopper places order online for Store Pick

* Inventory demand before and after reservation

Scenario 4: Shopper places order online for Store Pick - confirm

Thank you for your order!

You will receive a confirmation by e-mail to verify your order.

Order number: 23010

Order date: October 30, 2013

Continue Shopping

Shipping Information

Shipping Address:
Calgary Mall

Calgary Mall
1025 Cameron Ave SW
Calgary Alberta
Canada T2T 0K4
admin@madisons.ca

Ship as Complete: Yes

Shipping Method: Pickup in store

Product		Availability	Qty	Each	Total
	Modern Houseware Glass Base Table Lamp SKU: HLG028_281001 Color : Ivory	In-Stock	1	$40.00	$40.00

Order Subtotal:	$40.00
Discount:	$0.00
Tax:	$0.00
Shipping:	$0.00
Shipping Tax:	$0.00
Order Total:	**$40.00**

Scenario 4: Shopper places order online for Store Pick

*CSR searches for order and adds line

Order Summary
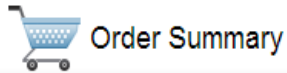
Tennent
amy@yahoo.com

MadisonsBase

Close | View/Add Notes

WC_23010 | **Created**

Order date:	10/30/13	Total amount:	$40.00
Channel:		Enterprise:	MadisonsBase

Bill To
Tennent
34 Main St
Falmouth, ME 04105
US

Ship To
Multiple addresses exist

Order Lines | Notes

Line Numl	Product	Unit Price	Quantity	Fulfillment Method	Expected on	Status
1	Modern Houseware Glass Base Table Lamp (HLG028_281001)	$40.00	1.0000 Each	Pick Up		Created

Close | View/Add Notes

Related Tasks

Frequently Asked Questions

Where is my shipment?
Why was I charged?

Order

View Order Summary
Change Payment Method
Change Gift Options
View All Invoices
Create Order
Cancel Products
Add/Remove Promotions
Add Lines to Order
Change Order Address
Resolve Holds
Apply Holds
Manage Charges
Change Product Variation
Customer Appeasement

Return

Create Return

Fulfillment

Change Fulfillment Options

Other

Scenario 4: Shopper places order online for Store Pick

*CSR searches for order and adds line for shipping

🛒 **Order Summary**

👤 **Tennent**
✉ amy@yahoo.com

| Close | View/Add Notes |

WC_23010   **Created**

| Order date: | 10/30/13 | | Total amount: | $73.80 |
| Channel: | | | Enterprise: | MadisonsBase |

Bill To

Tennent
34 Main St
Falmouth, ME 04105
US

Ship To

Multiple addresses exist

Order Lines | Notes

Line Number	Product	Unit Price	Quantity	Fulfillment Method	Expected on	Status
1	Modern Houseware Glass Base Table Lamp (HLG028_281001)	$40.00	1.0000 Each	Pick Up		Created
2	Modern Houseware Glass Ball Base Table Lamp (HLG028_281101)	$42.00	1.0000 Each	Shipping	10/30/13	Created

- Technical Overview

Inventory Process Flow
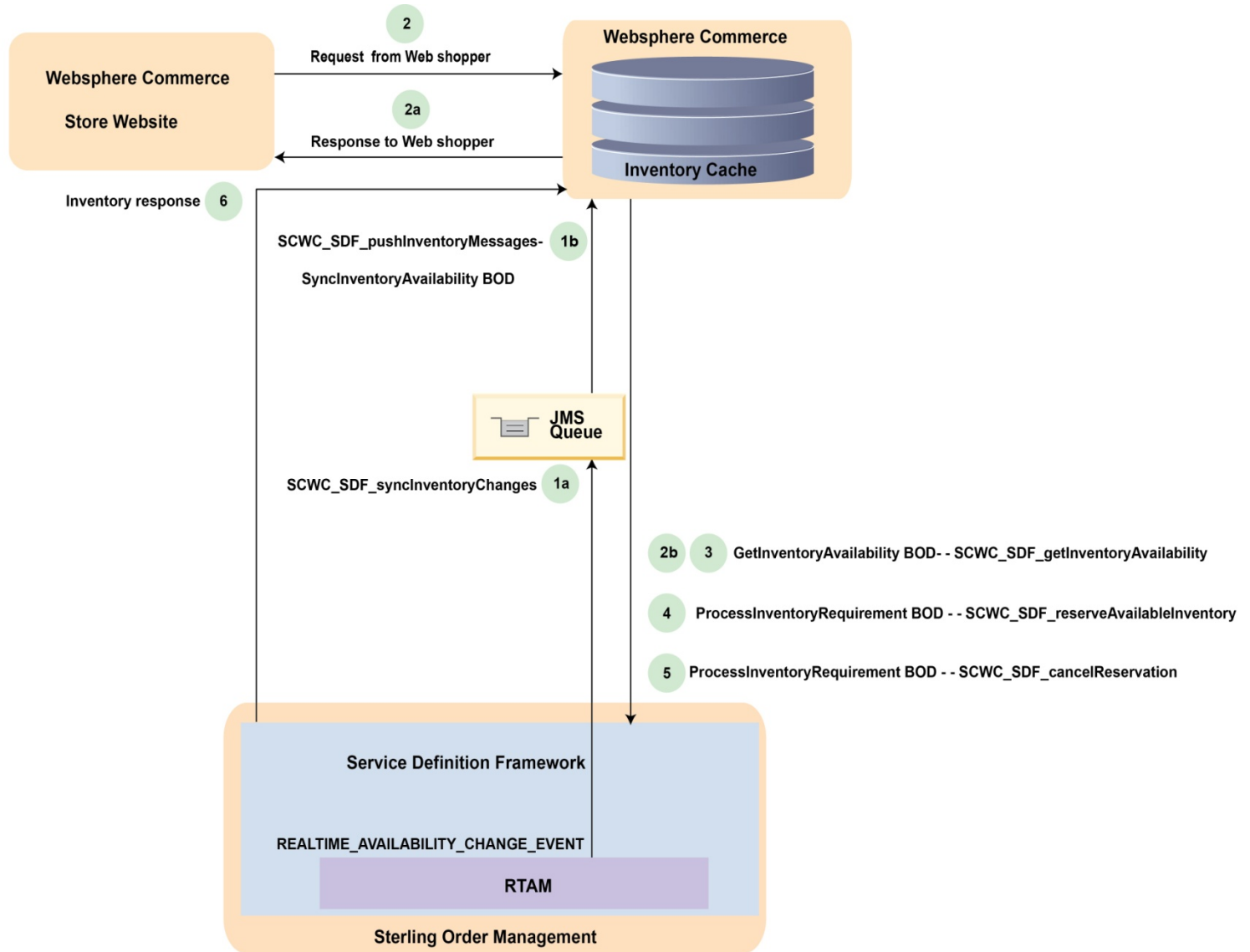
Order Process Flow
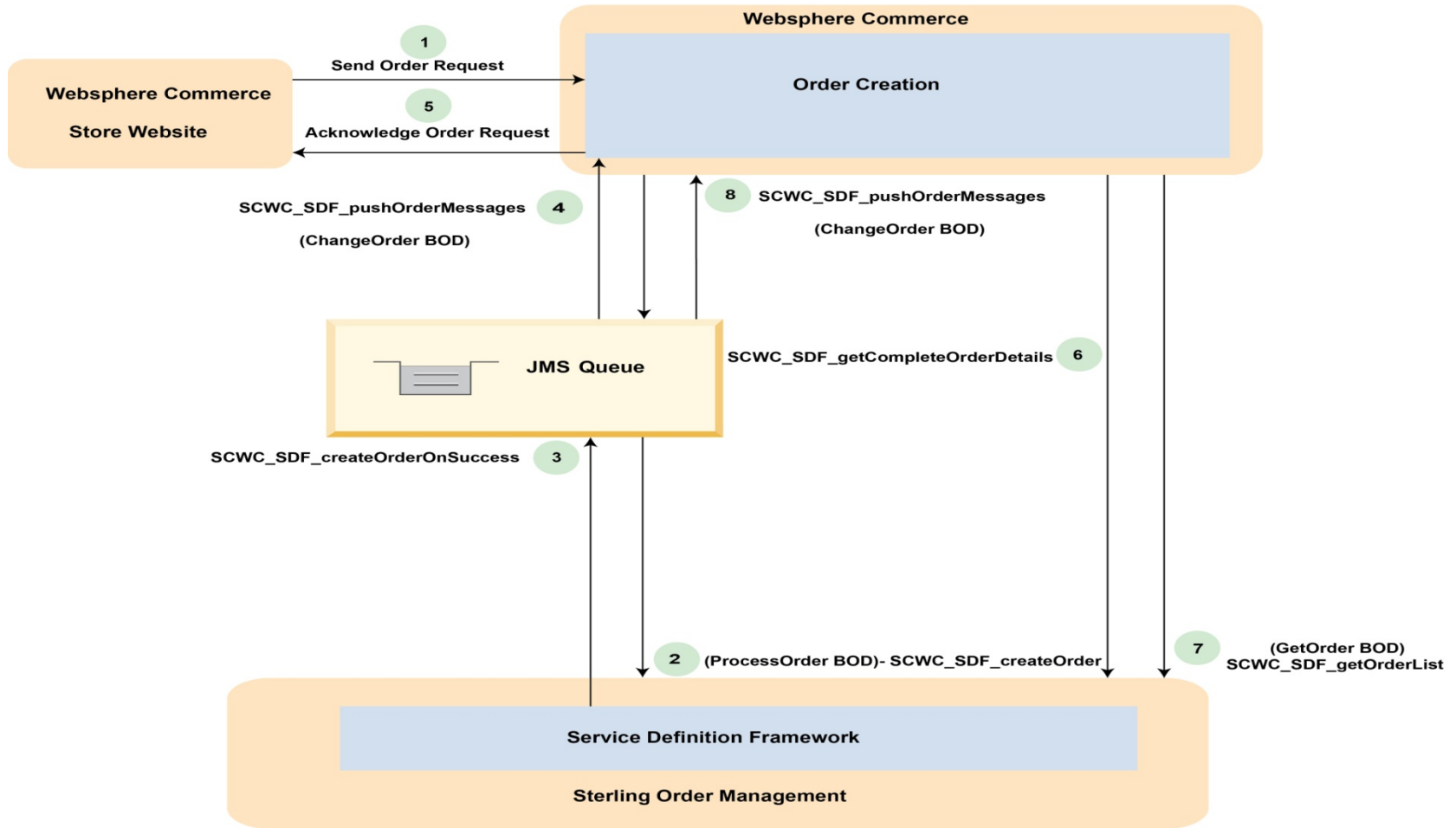
Pricing Promotion Flow
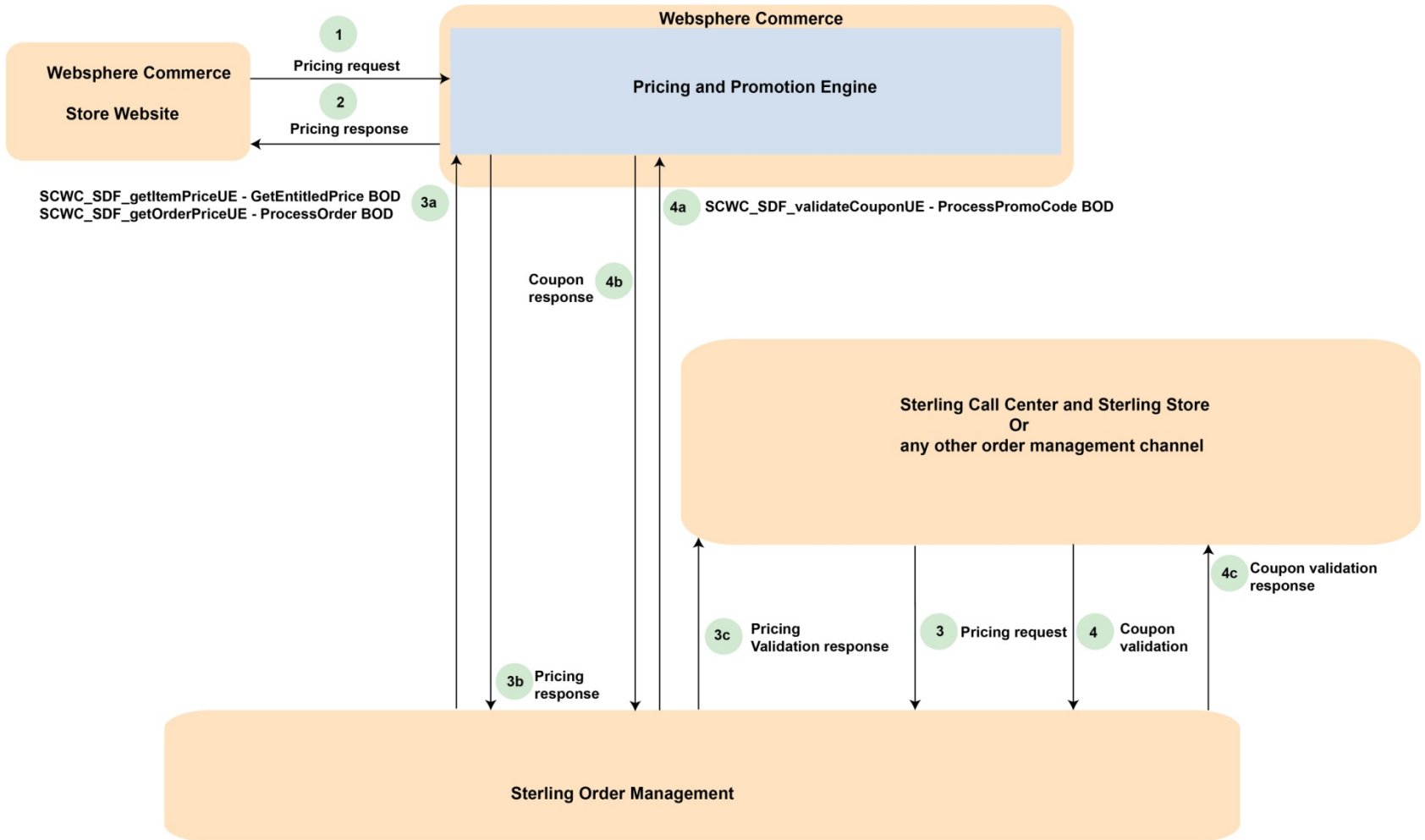
- ESB Independent Integration Overview

WESB Based Solution : FEP5(+) with 9.2(+)

WebSphere Comerce

WESB
- Message Content Transformation (XSLT)
- Value Mapping
- Queue communication
- Call AuthorizationOnlyServlet
- Conversion from WC Soap to Sterling XML

Sterling Order
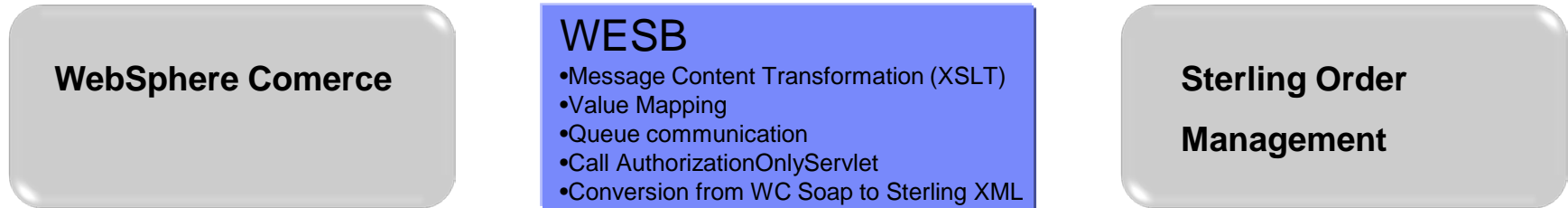
Management

ESB Independent Solution: *Future Release*

WebSphere Comerce

Sterling Order

Management

Leverage existing SDF
- Queue communication
- XSLT
- API component

+ Client to invoke webservice
+ SOAP Servlet

WebSphere Commerce & Sterling Order Management Integration

WebSphere Comerce

- Pricing & Promotion
- Cart
- InvCache

•getOrderPrice
•getItemPrice
•validateCoupon
•getPricingRuleDetails

•findInventory
•cancel reservation
•monitorItemAvailability
•reserveAvailableInventory
•getOrderList

•getCompleteOrderDetails

•Transfer Order

Sterling Order Management

Foundation

- SOAP Client
- SOAP Servlet
- AuthOnly Servlet
- SDF
- Integration Server(s)
- Order
- Inventory

JMS

• createOrder srevice called

•OrderCreate.OnSuccess
•RTAM
•DraftOrderConfirm.OnSuccess
•OrderChnage.OnCancel
•OrderChange.OnSuccess

Integration server picks up message from JMS and calls appropriate WC service

SOAP Servlet:

- **New** SOAP Servlet which will receive request from WC, invoke appropriate service define in SDF.

- This is the entry point to OOB services, it accepts service name and extensionClass arguments

- Two part service

Properties: API	
General Arguments Template Facts	
System Arguments	
Argument Name	Argument Value
serviceName	SCWC_SDF_reserveAvailableInventoryService
extensionClass	name of exension class

Component: ValueMapXSLTranslator

Example: SCWC_SDF_reserveAvailableInventoryService
Functional Example: WebSphere Commerce Storefront call to reserveAvailableInventory API

Building Block 1: ValueMapXSLTranslator

- Convert WC message format to Sterling API XML format and reverse (XSLT)
- Value Map conversion (ie. UOM C62 to EACH)
- Input properties:
  - XSL file
  - ValueMapXML file
  - extensionClass (for customization b'f and aft processing

Properties: API

| General | Arguments | Template | Facts |

System Arguments

Argument Name	Argument Value
xslFile	template/xsl/scwc/ProcessInventoryRequirementToReserveAvailableInventoryInput.xsl
valueMapXML	${scwc.value.mapping.file}

Component: API
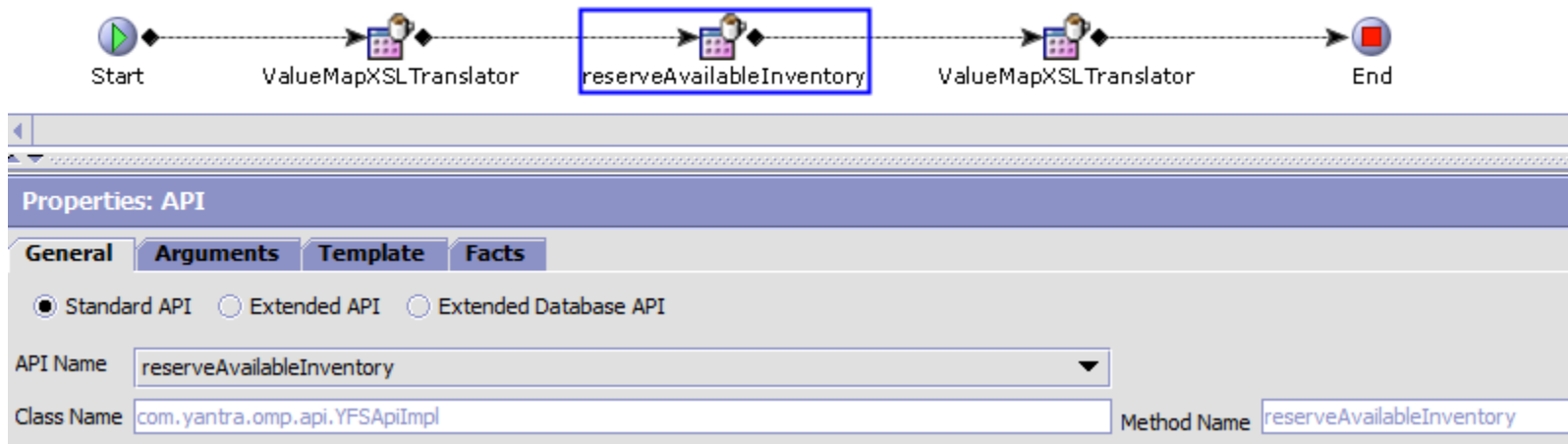
Example: SCWC_SDF_reserveAvailableInventoryService
Functional Example: WebSphere Commerce Storefront call to reserveAvailableInventory

Building Block 2 : API Node
•Used to call SC API

Components: Save and Retrieve Context
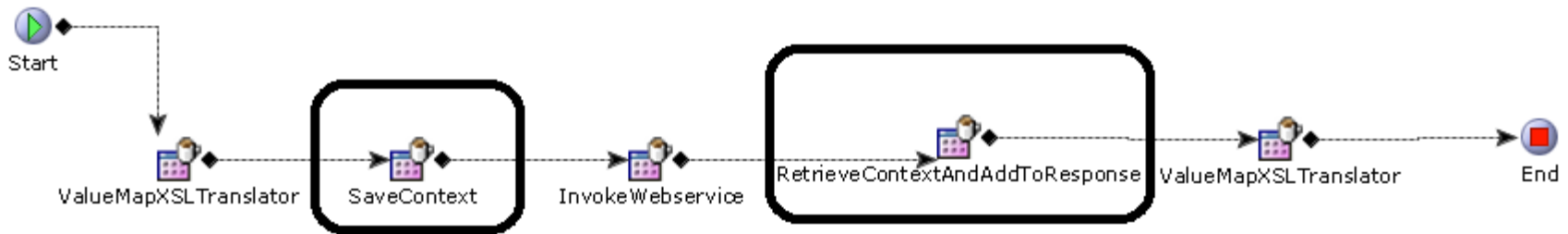
Example: SCWC_SDF_getOrderPriceService
Functional Example: Call Center created order priced by WC

Building Block 3&4: SaveContext and RetrieveContextAndAddToResponse

•This works in conjunction with the ValueMapXSLTranslator. Where in the XSL certain info is mapped to a "Context" element.

•SaveContext- removes correlation data (context element)from request and "saves" it off before making service call

•RetrieveContextAndAddToResponse – returns correlation (context element) data to the response

•ValueMapXSLTranslator – XSL file has mapping of context element to XML output to add info back.

Component: Client InvokeWebService

Start — ValueMapXSLTranslator — InvokeWebService — ValueMapXSLTranslator — End

Example: SCWC_SDF_getOrderPriceService
Functional Example: Call Center created order priced by WC

Building Block 5: Client – invoke WC WebService
•Use for Synchronous requests from SC to WC
•Creates SOAP message
•WC URL as argument

Differences:

- Pricing related calls no longer using synchronous JMS – direct call to WC webservice

- Processing of messages in Queue

  - With WESB messages for WC to consume were picked up by "WC scheduler" and WC service was called

  - With Future release messages are picked up by integration server in SDF

- WebSphere Commerce points to Sterling instead of WESB

- Customization Examples and Extension Points Available

Additional info coming from WC that needs to be mapped to Order Management API input -

- Example:

  - oob message has a,b, c and xsl has mapping for a, b, c

  - WC customized to pass d

  - Options

    1. copy oob xsl into "extn" directory, update with additional mapping

    2. using ValueMapXSLTranslator extensionclass *beforeServiceCall method* – "save" off 'd'

      - use oob xsl for message conversion

      - using ValueMapXSLTranslator extensionclass *afterServiceCall method* – retrieve 'd' and add to document

  - Implementation decision on approach

Based on X custom logic to manipulate input to Order Management API

- Example:

    - oob message has a,b, c and xsl has mapping for a,=1 b=2, c=3

    - Based on value of "a" customization to also populate "d"

    - Extension Point Options:

        1. copy oob xsl into /extn directory, update with additional mapping for d based on value of a

        2. using ValueMapXSLTranslator extensionclass afterServiceCall method – read value of 1 and populate d in document.

    - Implementation decision on approach

WC Storefront to call additional Order Management APIs/Services

- With existing SDF Functionality X number of new services can be created

- Nodes used oob for xsl, value map can be reused.

- Update action.properties - WC action with SC service name

# Order Management making additional calls to WC

- Would be new service in SDF

- Reuse of Components:
    - Client Invoke WebService
    - ValueMapsXSLTranslator
    - (optionally) Save and Retrieve context if required.

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- Performance

Performance considerations

- WC-OM P2P benchmark with focus on the integration performance

- Stack highlights: DB2 10.5 and WXS 8.6.0.2

- Hardware: POWER 7 and POWER 7+
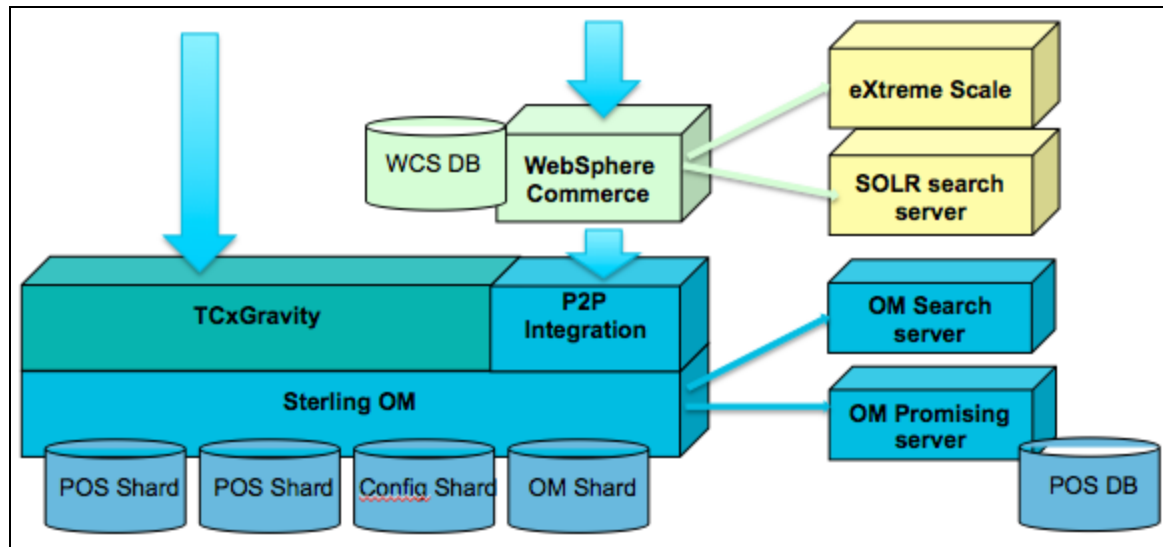
Performance considerations

- **Inventory availability and order transfer (6k VUs)**
  - RTAM activity mode alert to WC
  - 15% order-conversion rate + 2 order lines per order
    - **170K** (340K order lines) orders created and transferred per hour
    - 54K inventory alerts per hour pushed to WC
    - Steady response times of < 1 sec
  - 100% order-conversion rate + 2 order lines per order
    - **472K** (945K order lines) orders created and transferred per hour
    - Steady response times of < 1.7 sec

- **Inventory updates - Full-sync (1k VUs)**
  - RTAM Full-sync started 6 minutes later after shopping workload
  - 15% order-conversion rate + 2 order lines per order
    - Finished full-sync in 58 minutes (100K inventory alerts pushed to WC)
    - No apparent impact to response time or throughput of WC store front workload

Migration

Customizations to WESB

- *XSLT changes can be re-used in SDF solution*

- *Mix mode*

- *Custom java code can be ported to SDF component*

- *Manual process*

- Questions