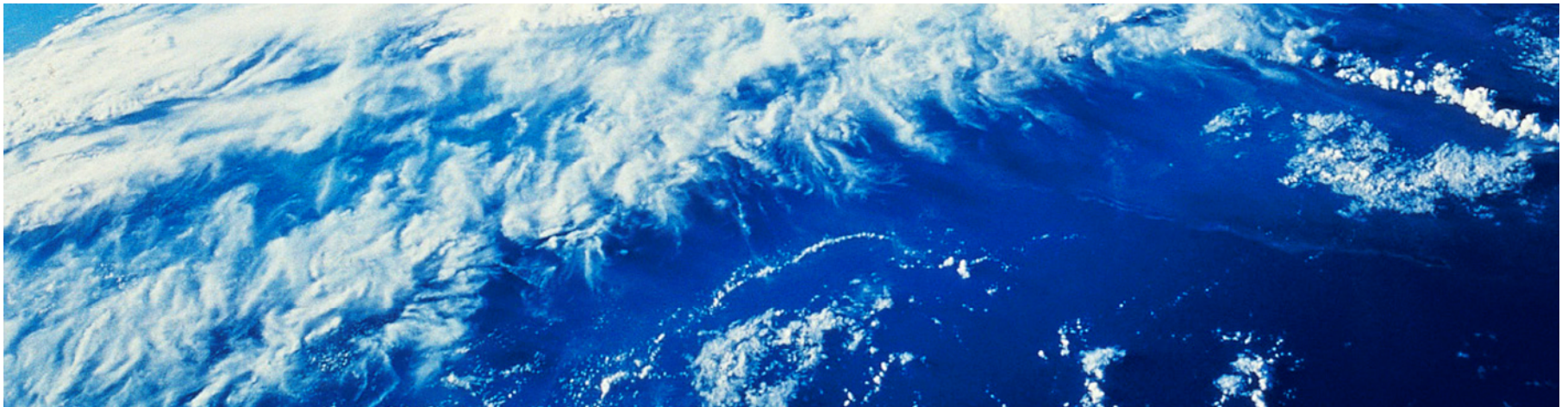# IBM WebSphere Commerce V7 FEP8
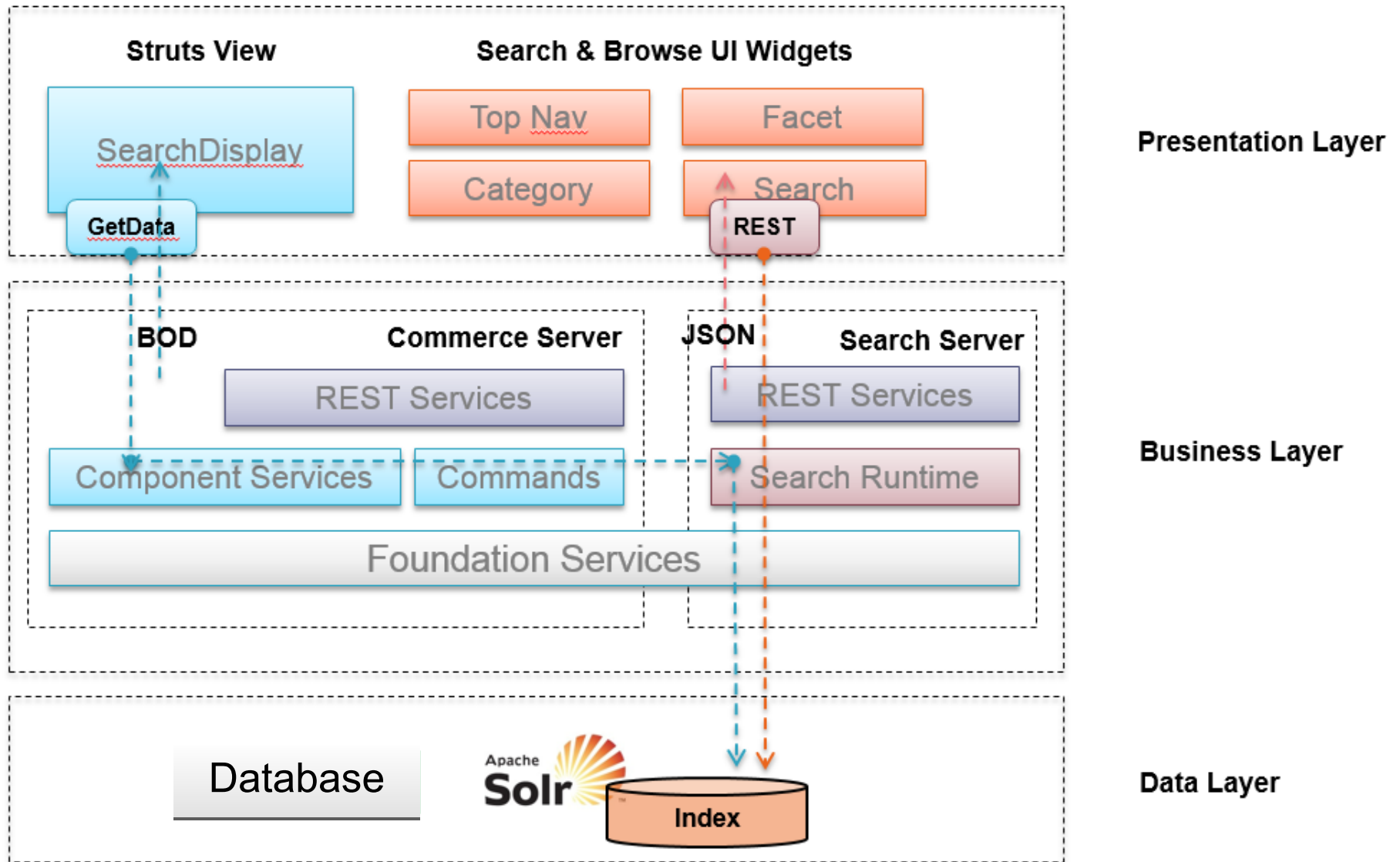
WebSphere Commerce Search

Agenda

- FEP 7 architecture review
  - Runtime architecture
  - Deployment topology

- Architecture update
  - Price indexing and facets
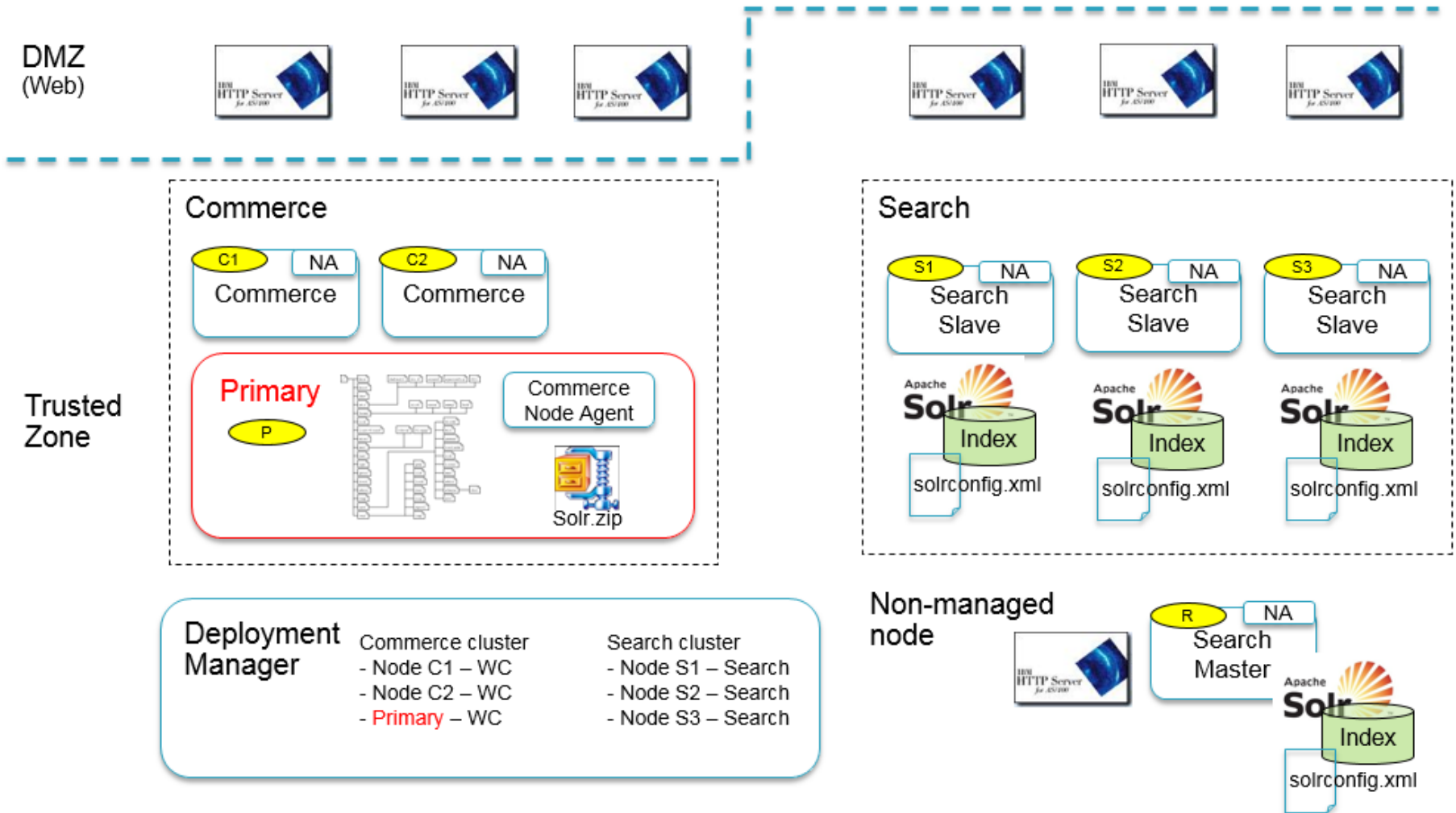 - Parallel preprocessing and distributed indexing

- Feature update
  - Rule-based sales categories
  - Search relevancy enhancements
    - Result grouping
  - Starter store enhancements
    - Auto-suggest

- Deployment update
  - Service logger and Admin logger
  - Solr 4.7 software stack

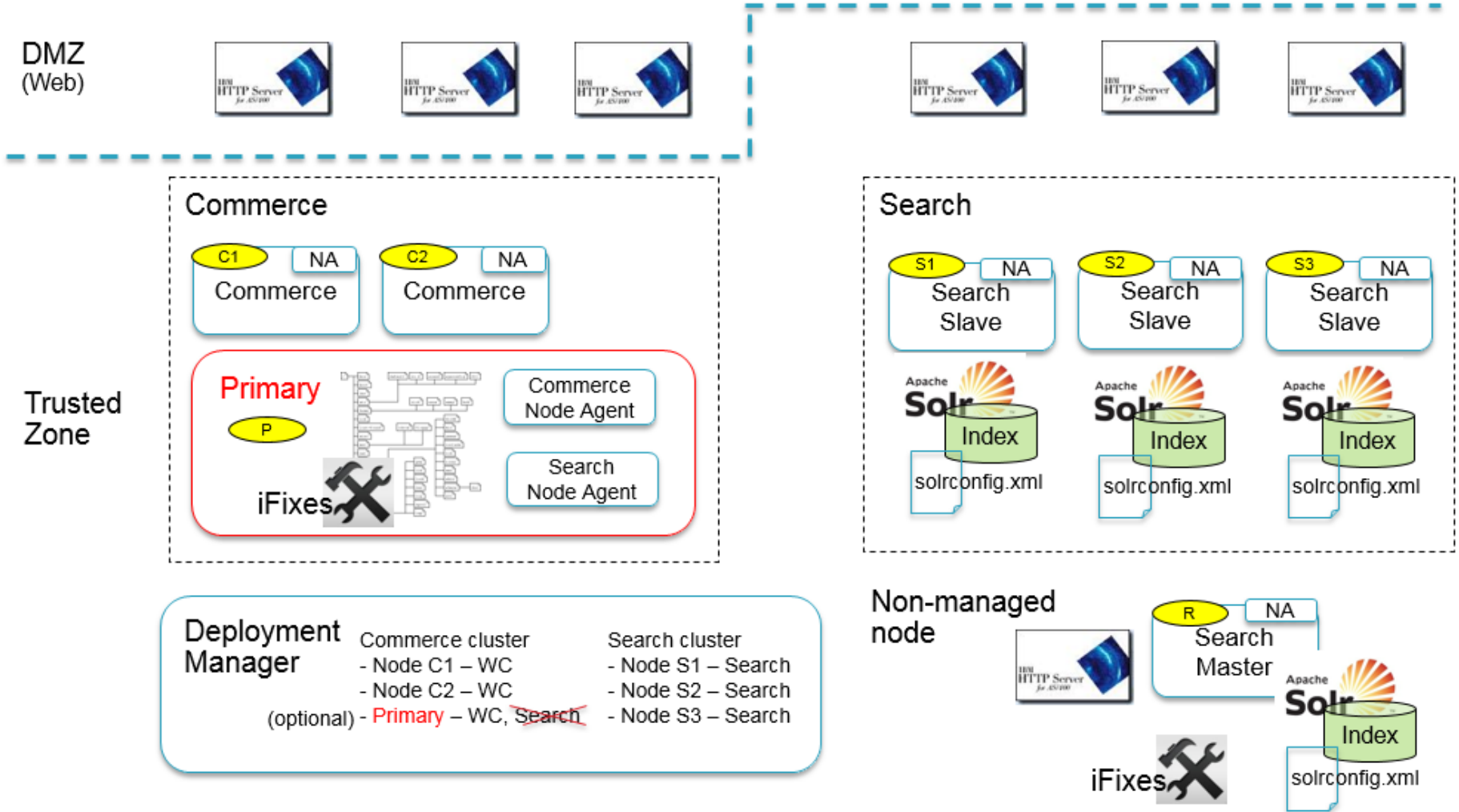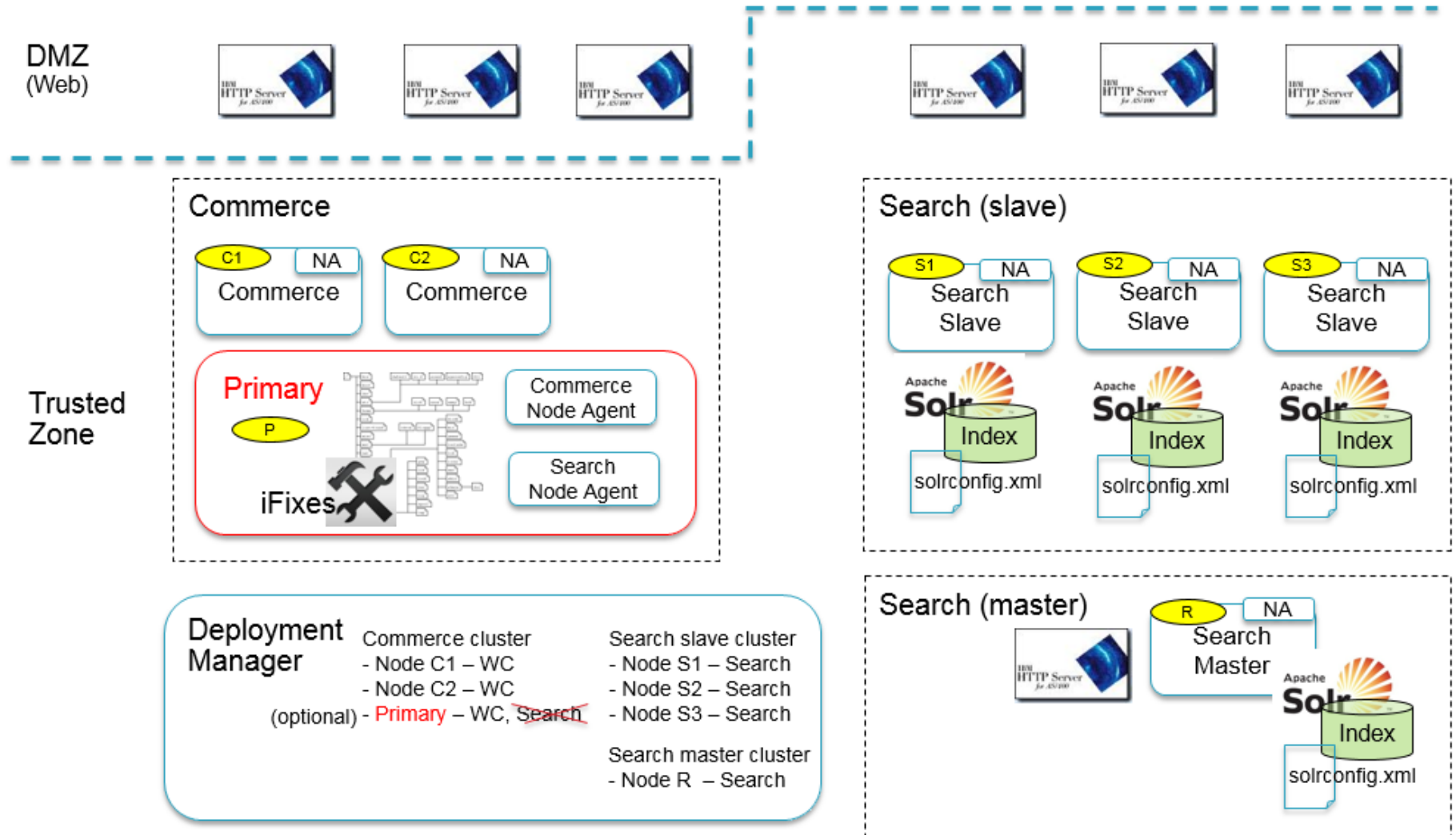# FEP 7/8 Search interaction flow at storefront

Pre-FEP 7 Search deployment

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FEP 7/8 Search deployment – compatibility

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FEP 7/8 Search deployment – managed repeater

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B2B and E-Site price indexing and facets

- Strategy
  - Small to medium size contracts (< 1000 contracts)
    - Out-of-the-box B2B price index
    - Append to existing Product index
    - Each contract based price list is modeled as a dynamic index column
    - Store level price override can be achieved using a store level price list
  - Enterprise size contracts
    - Custom implementation using separate price index
    - Post GM tutorial to demonstrate how

- Technique
  - Run scheduler or a utility on WC to preprocess price data into temporary table
    - Instead of pulling on demand which tends to be not effective
    - Preprocess component data at its own pace into temporary table and have others to read from it. This way, data is always available, just the question of "how accurate"
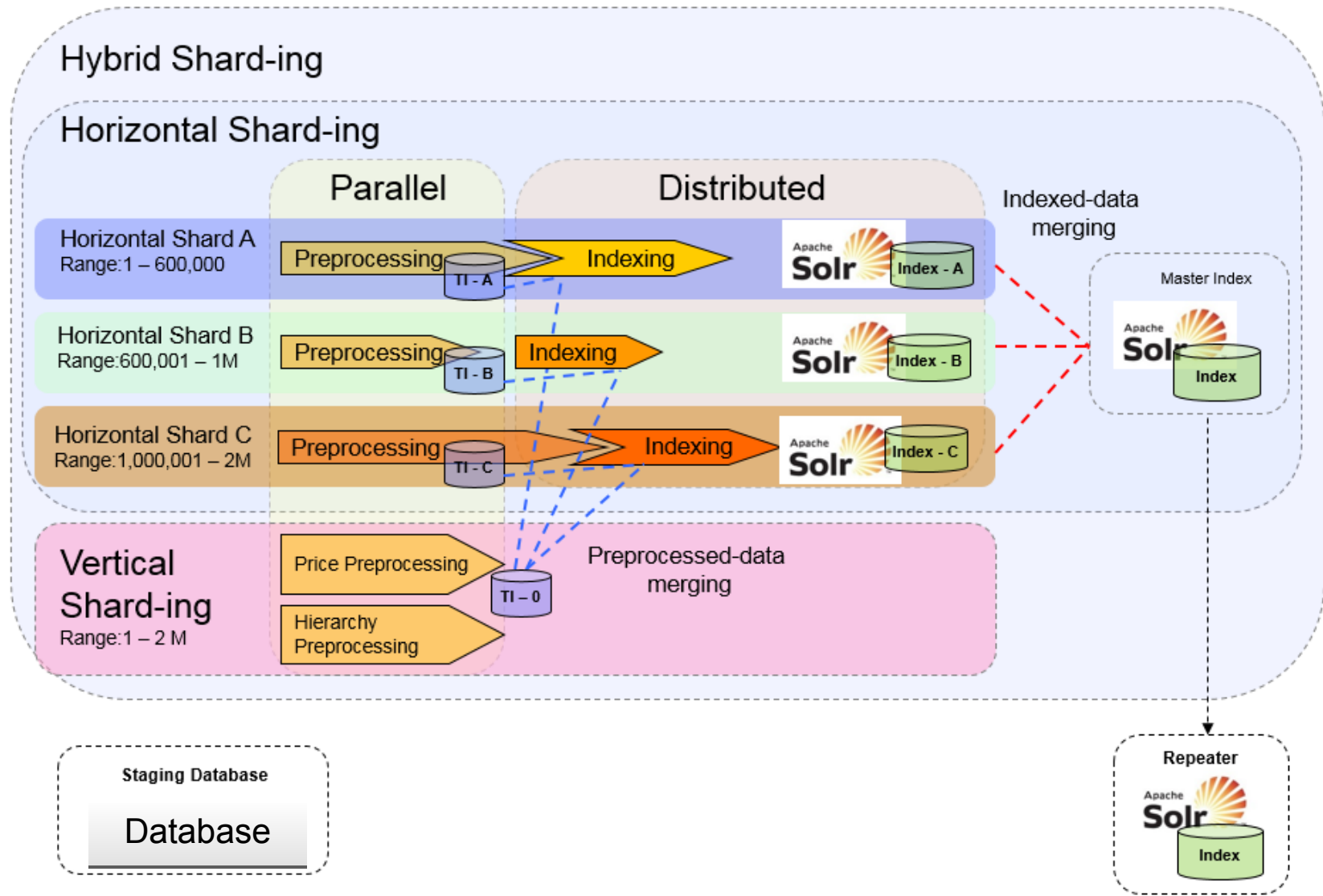 - Two approaches for preprocessing – full recalculation, or white list

- Assumption
  - Only one active contract for navigation (browsing, faceting, sorting)
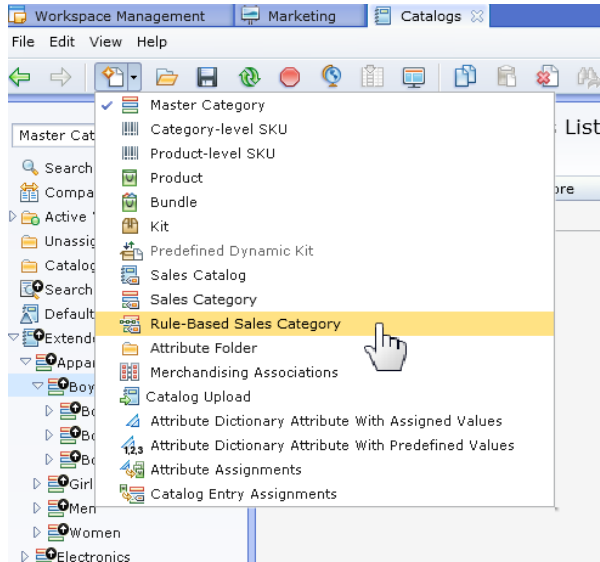 - Contract based price is calculated based on quantity of one item

- Restriction
  - B2B prices shown in store preview are only from approved content.
  - Future prices can be previewed provided that the appropriate future contract is indexed.
  - Cannot index dynamic price conditions, such as customer segment, date time condition, but can still display using Price API and therefore cannot facet and sort against calculated price

Parallel preprocessing and distributed indexing

Rule based sales category

Search relevancy enhancement – result grouping

- **Grouping**
  - Group by parent product
  - Search SKU return product
  - Include only available SKUs / attributes
  - Sort by relevancy
  - SKU price range (for navigation)

- **Hero product**
  - Use name, image, price of most relevant hit
  - Use search rule to boost hero item
  - Use tag to pick hero item

Search relevancy enhancement – result grouping w/ hero feature

Browsing

```xml
<!--
    This profile inherits all the elements defined in the IBM_findProductsB
-->
<_config:profile name="IBM_findProductsByCategory_grouping" extends="IBM_fi
    <_config:query inherits="true" override="postprocessor">
    <!-- When QueryMissingGroupOwner is set, and the productBean is not amo
        <_config:param name="QueryMissingGroupOwner" value="true"/>
        <_config:preprocessor classname="com.ibm.commerce.foundation.server
        <_config:postprocessor classname="com.ibm.commerce.foundation.serve

        <_config:postprocessor classname="com.ibm.commerce.foundation.serve
        <_config:postprocessor classname="com.ibm.commerce.foundation.serve
        <_config:postprocessor classname="com.ibm.commerce.foundation.serve
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        <_config:postprocessor classname="com.ibm.commerce.foundation.serve
        <_config:postprocessor classname="com.ibm.commerce.foundation.serve
        <_config:postprocessor classname="com.ibm.commerce.foundation.serve
    </_config:query>
    <_config:group inherits="false">
        <_config:param name="group" value="true"/>
        <_config:param name="group.limit" value="100"/>
        <_config:param name="group.facet" value="true"/>
        <_config:field name="grouping_parentCatentry_id"/>
    </_config:group>
    <_config:heroproduct inherits="false">
        <_config:param name="overrideFieldName" value="thumbnail"/>
        <_config:param name="showGroupPriceRange" value="true"/>
        <_config:field name="ads_f10003" value="Hero"/>
    </_config:heroproduct>
     <_config:result inherits="true">
        <_config:field name="ads_f10003"/>
    </_config:result>
</_config:profile>
```

Tagging

Searching

```xml
<!--
    This profile inherits all the elements defined in the IBM_findProductsBySear
-->
<_config:profile name="IBM_findProductsBySearchTerm_grouping" extends="IBM_findP
    <_config:query inherits="true" override="postprocessor">
    <!-- When QueryMissingGroupOwner is set, and the productBean is not among th
        <_config:param name="QueryMissingGroupOwner" value="true"/>
        <_config:preprocessor classname="com.ibm.commerce.foundation.server.serv
        <_config:postprocessor classname="com.ibm.commerce.foundation.server.ser

        <_config:postprocessor classname="com.ibm.commerce.foundation.server.ser
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        <_config:postprocessor classname="com.ibm.commerce.foundation.server.ser
        <_config:postprocessor classname="com.ibm.commerce.foundation.server.ser
        <_config:postprocessor classname="com.ibm.commerce.foundation.server.ser
    </_config:query>
    <_config:group inherits="false">
        <_config:param name="group" value="true"/>
        <_config:param name="group.limit" value="100"/>
        <_config:param name="group.facet" value="true"/>
        <_config:param name="group.sort" value="score desc"/>
        <_config:field name="grouping_parentCatentry_id"/>
    </_config:group>
    <_config:heroproduct inherits="false">
        <_config:param name="overrideFieldName" value="thumbnail"/>
        <_config:param name="showGroupPriceRange" value="false"/>
    </_config:heroproduct>
</_config:profile>
```

Most relevant

Auto-suggest enhancement

- Suggested keyword scoped by:
  - Store
  - Catalog

- Suggested product driven by rule based filtering:

Auto-suggest enhancement – keyword suggestion

- **Suggested keyword scoped by:**
  - Store
  - Catalog

- **wc-component.xml**

```
is enabled by default.

To optimize the indexing process, only enable one of the above copy field functions, t
search server and perform full data-import index build.

-->
<_config:property name="LimitKeywordSuggestionsToStoreAndCatalog" value="false" />
```

- **solr-config.xml**

```xml
<!--
    WebSphere Commerce data import request handler
-->
<requestHandler name="/dataimport" class="org.apache.solr.handler.dataimport.DataImportHandler">
  <lst name="defaults">
    <str name="config">wc-data-config.xml</str>
  <!-- Enable if using dynamic spellCheck field.
  <str name="update.chain">wc-conditionalCopyFieldChain</str>
  -->
  </lst>
</requestHandler>
```

```xml
<!--
    WebSphere Commerce conditional Copy Field Chain update processor

    When enabled, it copies the source fields into the target field if the conditions are met. The target field is
    tokenized with store and catalog. It is meant to create store and catalog specific spell check columns to be used by
    the Solr TermComponent.

    i.e. spellCheck_10152_10001 where the store id is 10152, and catalog id is 10001
-->
<!-- Enable if using dynamic spellCheck field.
<updateRequestProcessorChain name="wc-conditionalCopyFieldChain">
  <processor class="com.ibm.commerce.foundation.internal.server.services.search.index.solr.ConditionalCopyFieldProcessorFactory">
    <bool name="enabled">true</bool>
    <str name="sourceField">name,shortDescription,keyword,nameOverride,shortDescriptionOverride,keywordOverride</str>
    <str name="targetField">spellCheck</str>
    <lst name="conditions">
        <str name="published">1</str>
        <str name="buyable">1</str>
    </lst>
  </processor>
  <processor class="solr.LogUpdateProcessorFactory" />
  <processor class="solr.RunUpdateProcessorFactory" />
</updateRequestProcessorChain>
-->
```

Auto-suggest enhancement – product suggestion

- Suggested product driven by rule based filtering:

```xml
<_config:profile name="IBM_findNavigationSuggestion_Products" indexName="CatalogEntry" >
    <_config:query>
        <_config:param name="maxRows" value="12"/>
        <_config:param name="searchType" value="1000"/>

        <!-- Default providers -->
        <_config:provider classname="com.ibm.commerce.foundation.internal.server.services.search.expres
        <_config:provider classname="com.ibm.commerce.foundation.internal.server.services.search.expres
        <_config:provider classname="com.ibm.commerce.foundation.internal.server.services.search.expres
        <_config:provider classname="com.ibm.commerce.foundation.internal.server.services.search.expres

         <!-- profile added providers -->
        <_config:provider classname="com.ibm.commerce.foundation.server.services.rest.search.expression
        <_config:provider classname="com.ibm.commerce.foundation.server.services.rest.search.expression
        <_config:provider classname="com.ibm.commerce.foundation.server.services.rest.search.expression
        <_config:provider classname="com.ibm.commerce.foundation.server.services.rest.search.expression
        <_config:provider classname="com.ibm.commerce.foundation.server.services.rest.search.expression
        <_config:provider classname="com.ibm.commerce.foundation.server.services.rest.search.expression
        <_config:provider classname="com.ibm.commerce.foundation.server.services.rest.search.expression
        <_config:provider classname="com.ibm.commerce.foundation.server.services.rest.search.expression
        <_config:field name="name"/>
        <_config:field name="defaultSearch"/>
        <_config:field name="categoryname"/>
        <_config:field name="shortDescription"/>
        <_config:field name="name_suggest"/>
        <_config:field name="shortDesc_suggest"/>

        <!-- Default preprocessor -->
        <_config:preprocessor classname="com.ibm.commerce.foundation.internal.server.services.search.qu
```
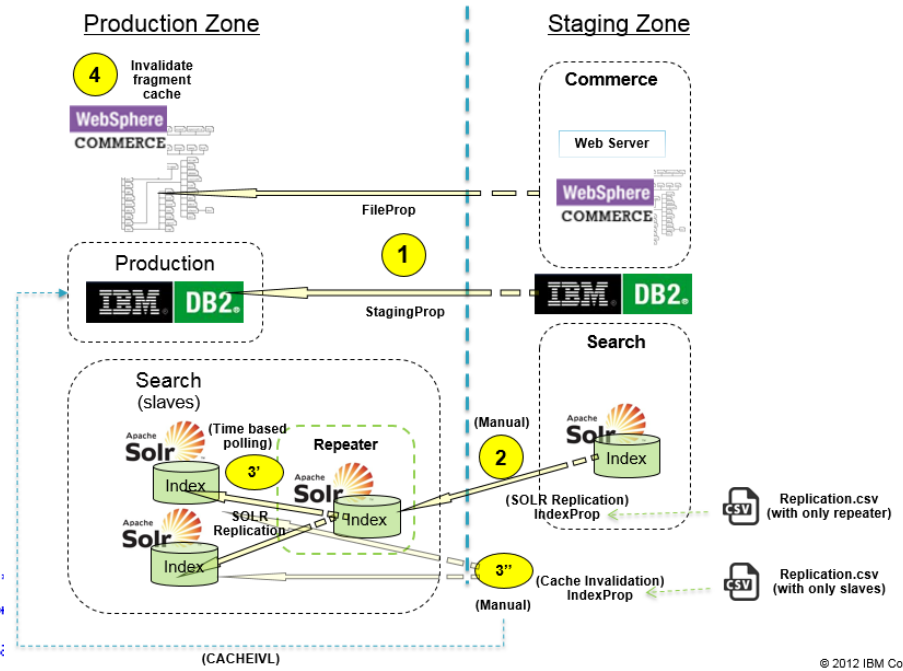
Logging and tracing enhancement

- **Search Server**
  - Wink
  - Serviceability trace
  - Transaction
  - Component trace
    - REST
    - Catalog
    - Foundation
    - Cache invalidation
  - Solr

  - Admin logging
    - Indexing
    - Replication
    - Cache invalidation

Production Zone

4 Invalidate fragment cache

WebSphere COMMERCE

FileProp

Production

IBM DB2

StagingProp

Search (slaves)

Apache Solr — (Time based polling) — Repeater

Index — 3'

Apache Solr — Index

Apache Solr — SOLR Replication

Index — 3''

(CACHEIVL)

Staging Zone

Commerce

Web Server

WebSphere COMMERCE

1

IBM DB2

Search

Apache Solr — Index

2

(Manual)

(SOLR Replication) IndexProp

CSV — Replication.csv (with only repeater)

(Cache Invalidation) IndexProp

(Manual)

CSV — Replication.csv (with only slaves)

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com.ibm.commerce.datatype.
com.ibm.commerce.dynacache.
com.ibm.commerce.foundation.*
⊞ com.ibm.commerce.founda
⊞ com.ibm.commerce.foundation.common.*
⊞ com.ibm.commerce.foundation.dataload.*
⊞ com.ibm.commerce.foundation.external.*
⊞ com.ibm.commerce.foundation.internal.*
⊟ com.ibm.commerce.foundation.logging.*
      com.ibm.commerce.foundation.logging.AdminLogger
      com.ibm.commerce.foundation.logging.ExtendedInfo
      com.ibm.commerce.foundation.logging.ServiceLogger
      com.ibm.commerce.foundation.logging.TransactionLogger
   ⊞ com.ibm.commerce.foundation.logging.service.*
⊞ com.ibm.commerce.foundation.rest.*
⊞ com.ibm.commerce.foundation.server.*
com.ibm.commerce.giftcenter.*
com.ibm.commerce.infrastructure.*
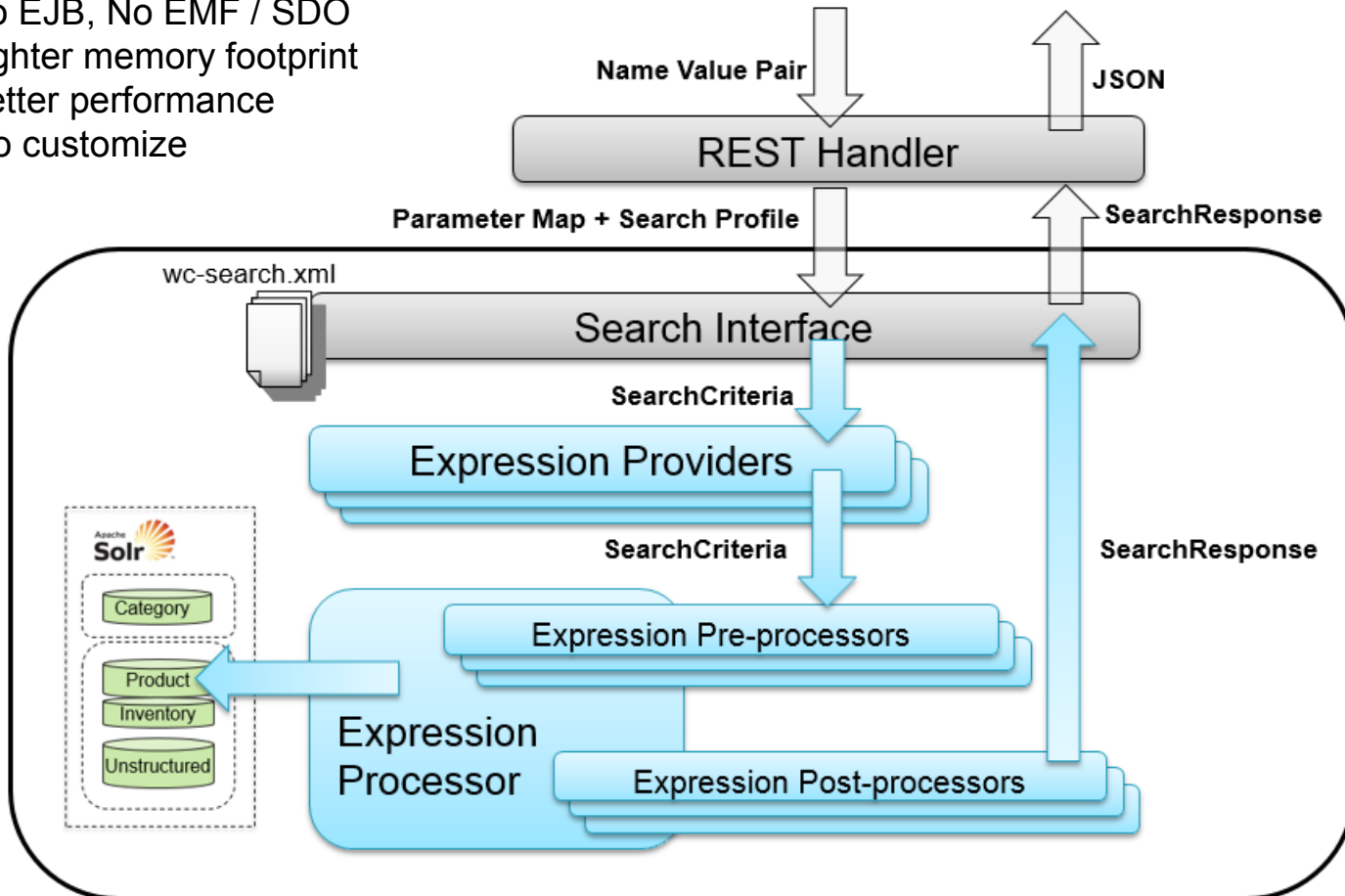com.ibm.commerce.installment.*
com.ibm.commerce.inventory.*

Backup slides

FEP 7/8 Search programming model update (Simplified, lightweight on Search server)

- Shorter overall code path
  - No EJB, No EMF / SDO
  - Lighter memory footprint
  - Better performance
- Easier to customize

Name Value Pair

JSON

REST Handler

Parameter Map + Search Profile

SearchResponse

wc-search.xml

Search Interface

SearchCriteria

Expression Providers

SearchCriteria

SearchResponse

Apache Solr

Category

Product

Inventory

Unstructured

Expression Pre-processors

Expression Processor

Expression Post-processors

Thank You!

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