Oracle Fusion Middleware 12c

Cloud Application Foundation

YouTube Video Series

ORACLE

Coherence Live Events

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Oracle Coherence

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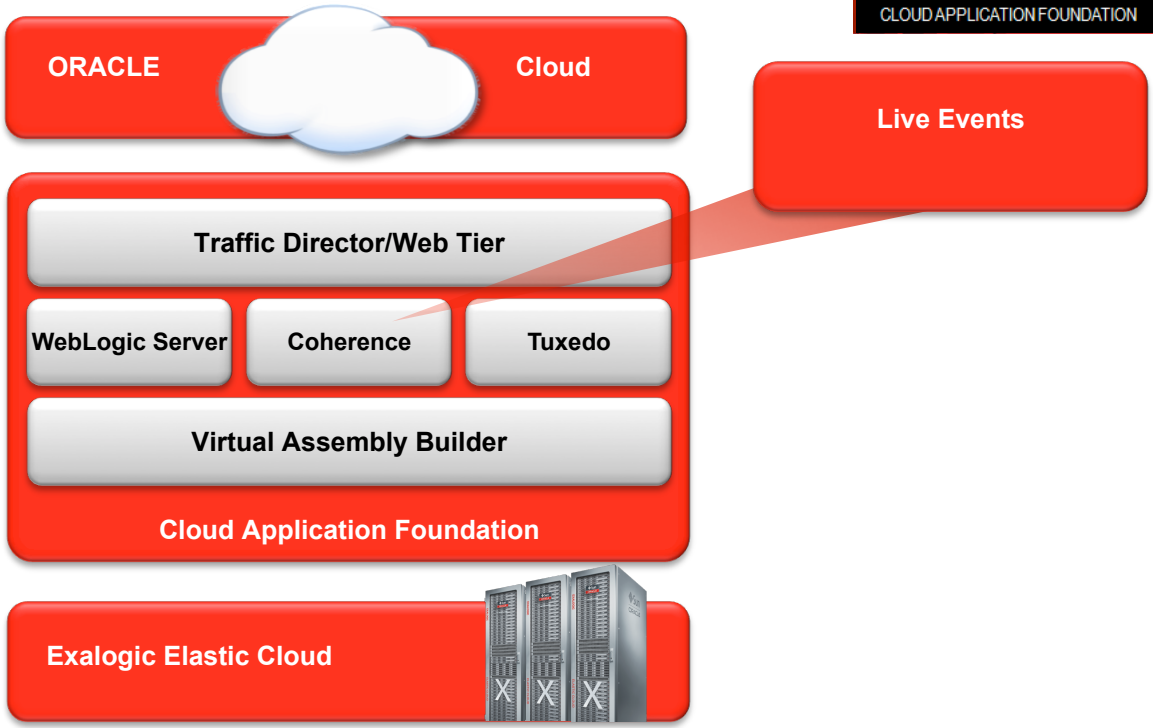
Cloud Application Foundation

Coherence 12c Demonstration – Live Events

- Complete
- Open
- Integrated
- Best in Class
- On Premise – Private Cloud
- Public Cloud



Coherence Eventing Mechanisms

Existing

- MapListener
  - Client-side “post”-events
- Triggers
  - Server-side “pre”-events
- Backing Map Listeners
  - Server-side “post”-events
- Others
  - PartitionListener, MemberListener, ServiceListener

Coherence Eventing Mechanisms

Disadvantages

- Distinct registration mechanism per event type
- No commonality for client interfaces or events
- Are the events synchronously or asynchronously dispatched?

Live Event Model

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PartitionedCache

- EntryEvent
  - Data related
- EntryProcessorEvent
  - EntryProcessor invocation

PartitionedService

- TransferEvent
  - Partition redistribution
- TransactionEvent
  - Cross cache event

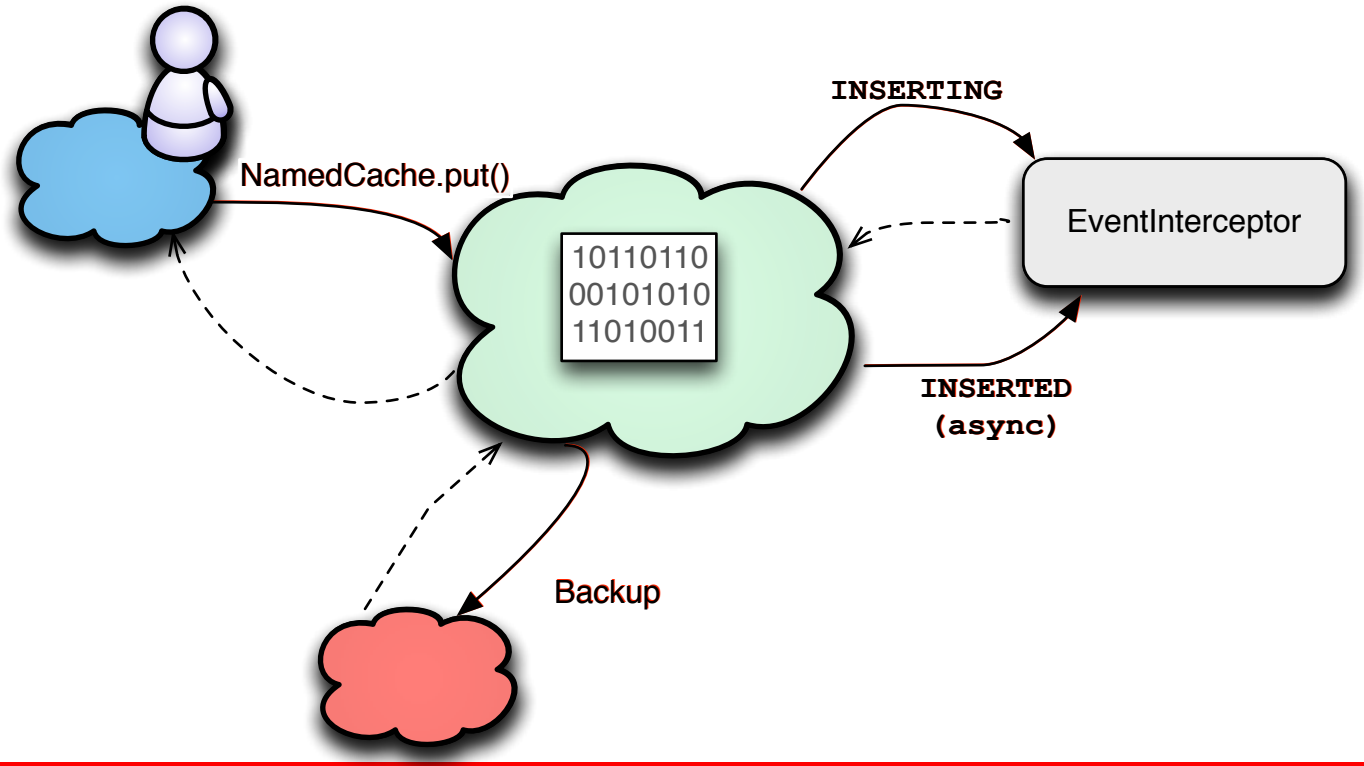
Data-Related Events

- BinaryEntry-based

```
public interface EntryEvent
        extends Event<EntryEvent.Type>
    {
    /**
     * Return the immutable Set of {@link BinaryEntry entries} on which the
     * action represented by this {@link EntryEvent} occurred.
     *
     * @return the Set of entries represented by this event
     */
    public Set<BinaryEntry> getEntrySet();


    public static enum Type
        {
        INSERTING, INSERTED, UPDATING, UPDATED, REMOVING, REMOVED
        }
    }
```

Data-Related Events



EntryProcessor-Related Events

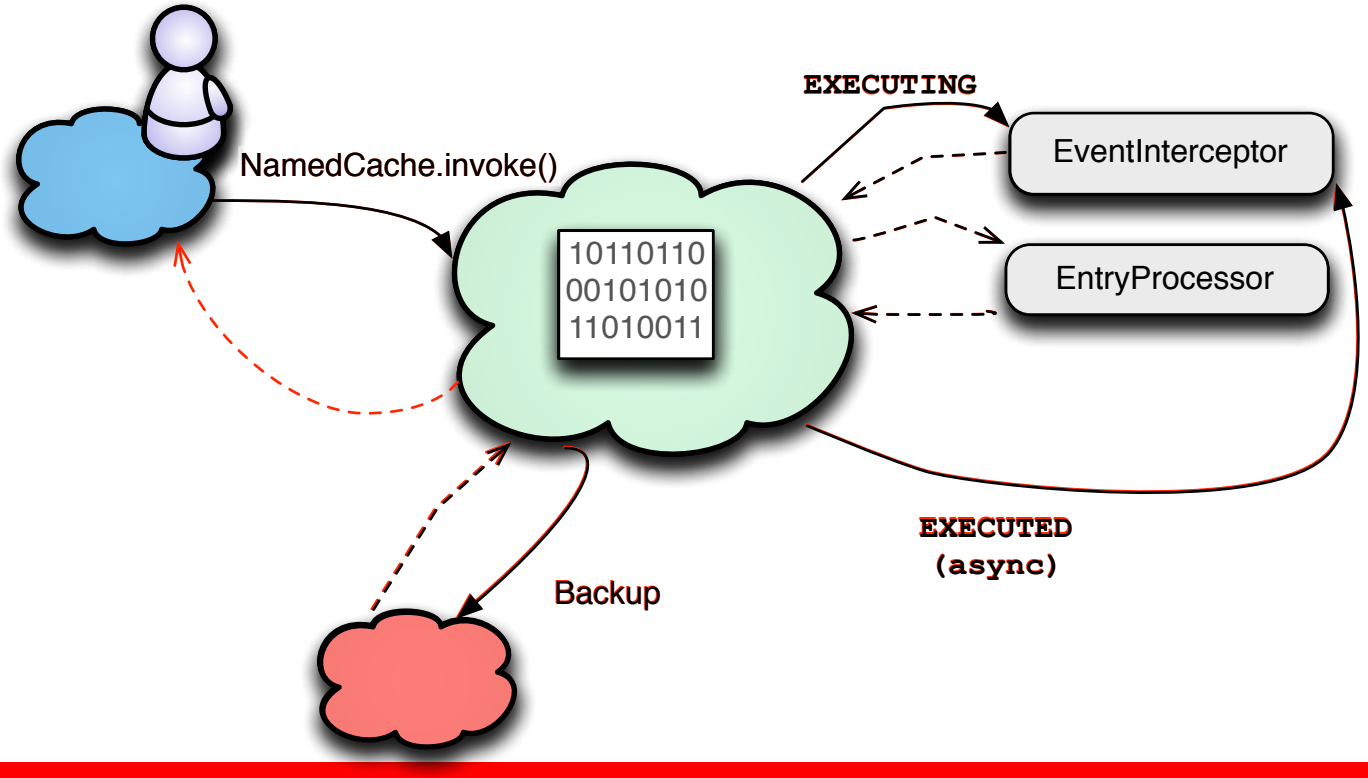
- BinaryEntry-based

```
public interface EntryProcessorEvent
        extends Event<EntryEvent.Type>
    {
    public Set<BinaryEntry> getEntrySet();

    /**
     * Return the {@link EntryProcessor} associated with this {@link
     * EntryProcessorEvent}.
     *
     * @return the entry processor associated with this event
     */
    public EntryProcessor getProcessor();

    public static enum Type
        {
        EXECUTING, EXECUTED
        }
    }
```

EntryProcessor-Related Events



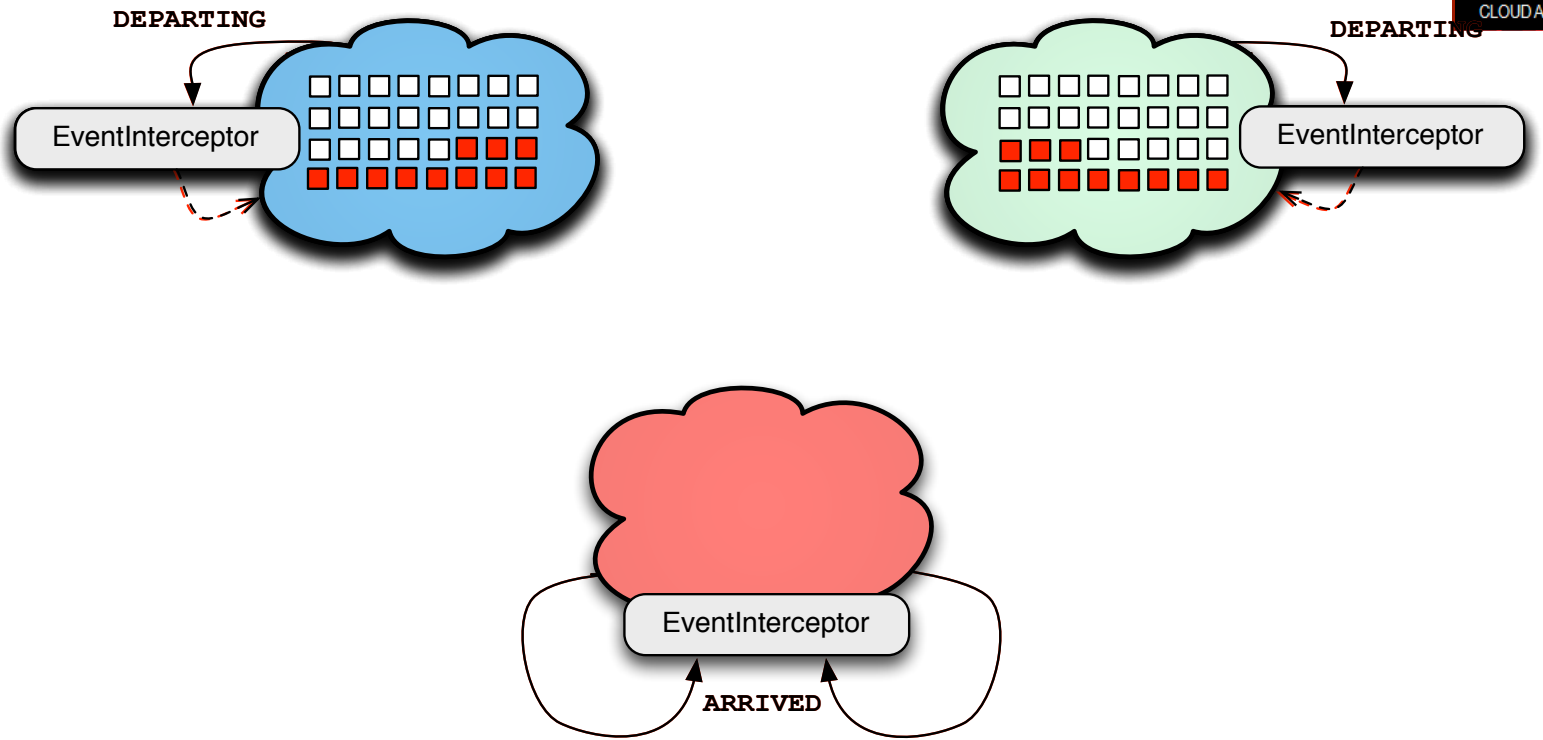
Transfer-Related Events

- BinaryEntry-based

```
public interface TransferEvent
        extends Event<EntryEvent.Type>
    {
    public int    getPartitionId();
    public Member getLocalMember();
    public Member getRemoteMember();
    /**
     * Return a map of cache names and associated set of read-only {@link
     * BinaryEntry entries} encapsulated in this {@link TransferEvent}. The
     * returned map and contained sets are immutable.
     *
     * @return a map of cache names and associated set of entries
     */
    public Map<String, Set<BinaryEntry>> getEntries();

    public static enum Type
        {
        DEPARTING, ARRIVED
        }
    }
```

Transfer-Related Events



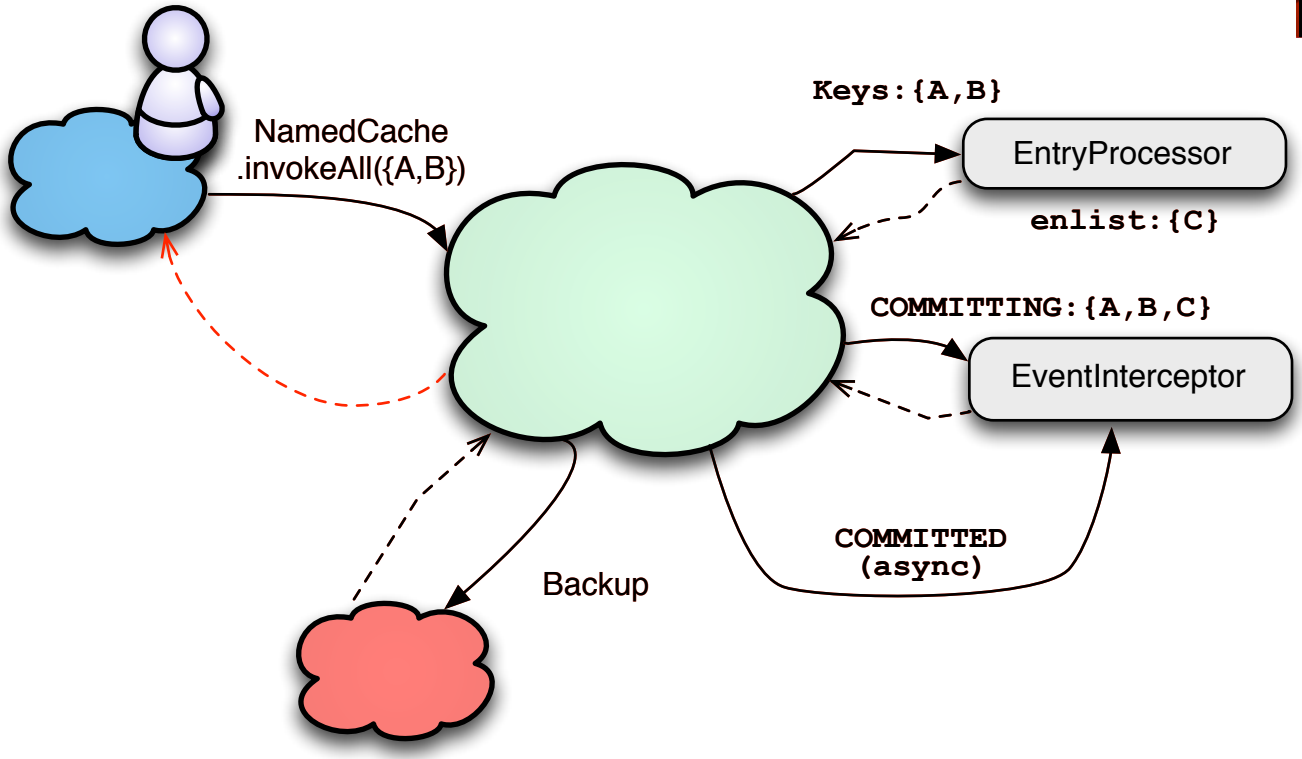
Transaction-Related Events

- All entries enlisted within a partition local transaction
- BinaryEntry-based

```
public interface TransactionEvent
        extends Event<TransactionEvent.Type>
    {
    /**
     * A set of {@link BinaryEntry entries} enlisted within this
     * transaction.
     *
     * @return a set of entries enlisted within this transaction
     */
    public Set<BinaryEntry> getEntrySet();

    public static enum Type
        {
        COMMITTING, COMMITTED
        }
    }
```

Transaction-Related Events



Registration

Declarative – Cache Configuration

- distributed-scheme
  - PartitionedService level interceptors: TransferEvent & TransactionEvent
  - PartitionedCache events for all caches
- cache-scheme-mapping
  - PartitionedCache level interceptors: EntryEvent & EntryProcessorEvent
  - Ties to caches that conform to the cache-name pattern
- Use Annotation & Generics to filter events

Registration

Declarative – Cache Configuration

```
<cache-config xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
              xmlns="http://xmlns.oracle.com/coherence/coherence-cache-config"
              xsi:schemaLocation="http://xmlns.oracle.com/coherence/coherence-cache-config coherence-cache-config.xsd">
  <caching-scheme-mapping>
    <cache-mapping>
        <cache-name>vetod-events</cache-name>
        <scheme-name>ExamplesPartitionedPofScheme</scheme-name>
        <interceptors>
            <interceptor>
                <instance>
                    <class-name>com.tangosol.examples.events.CantankerousInterceptor</class-name>
                </instance>
            </interceptor>
        </interceptors>
    </cache-mapping>
  </caching-scheme-mapping>
  <caching-schemes>
    <distributed-scheme>
      <scheme-name>ExamplesPartitionedPofScheme</scheme-name>
      <interceptors>
          <interceptor>
              <instance>
                  <class-name>com.tangosol.examples.events.RedistributionInterceptor</class-name>
              </instance>
          </interceptor>
      </interceptors>
    </distributed-scheme>
  </caching-schemes>
</cache-config>
```

```
@Interceptor(identifier = "cantankerous",
        entryEvents = {Type.INSERTING, Type.INSERTED, Type.UPDATING, Type.UPDATED})
public class CantankerousInterceptor
        implements EventInterceptor<EntryEvent>
```

Registration

Programmatic

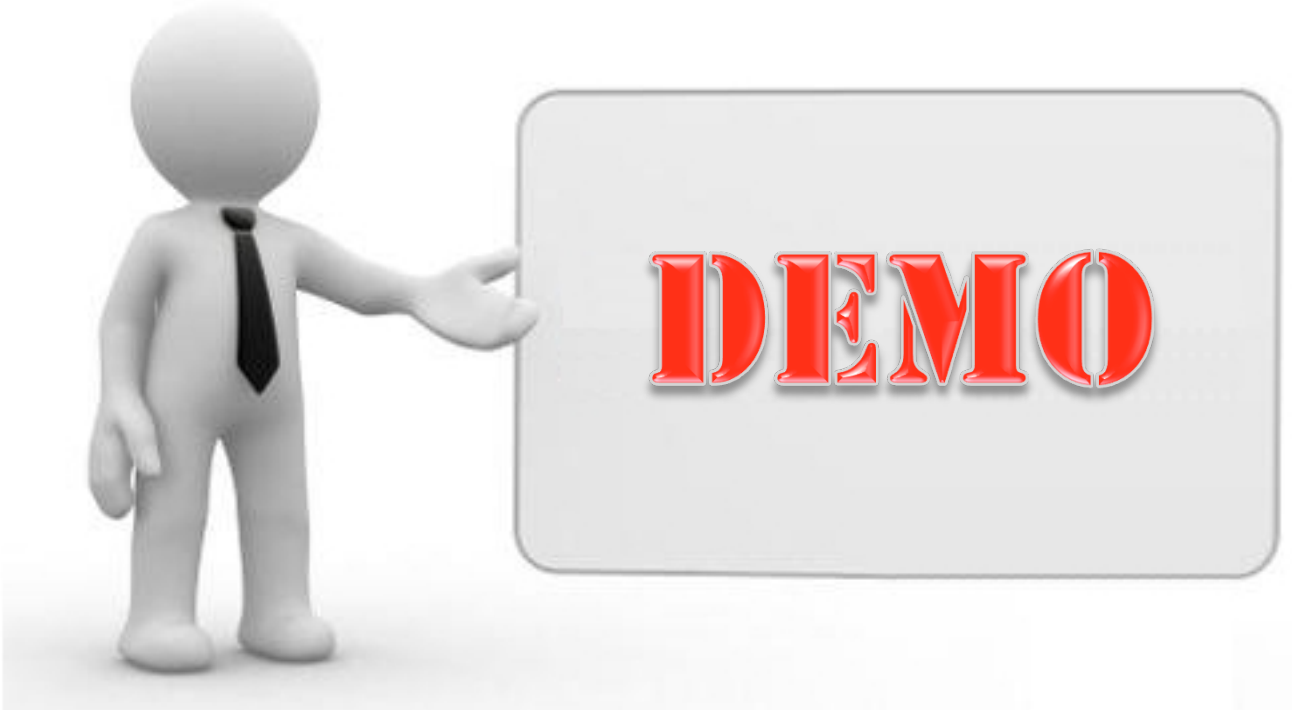
- ConfigurableCacheFactory holds an InterceptorRegistry:

```
ConfigurableCacheFactory ccf = CacheFactory.getConfigurableCacheFactory();
InterceptorRegistry      reg = ccf.getInterceptorRegistry();

reg.registerEventInterceptor("argumentative", new CantankerousInterceptor());
```

- Annotation and Generics on interceptor are honored

- Services and caches can be filtered by implementing:
  EventDispatcherAwareInterceptor



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