



SIF®



SIF: Nuts and Bolts at the Message Layer

Larry Fruth
Laurie Collins
SIF Association
www.sifassociation.org



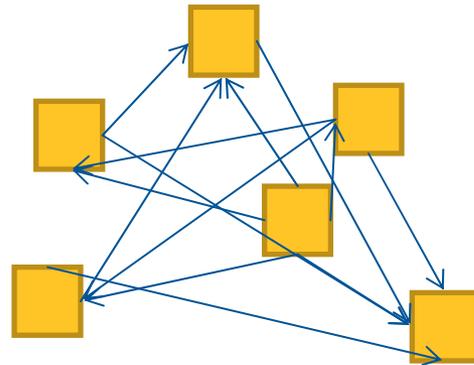
Overview



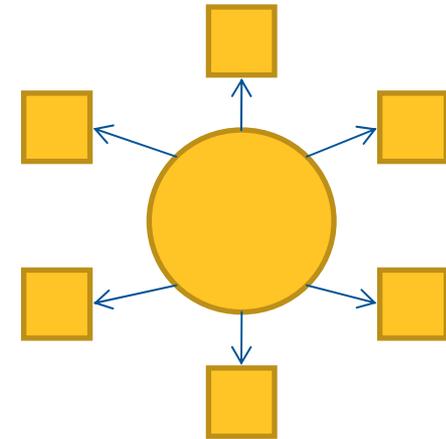
- ZIS and Zones
- Data Flow
- SIF Messaging
- The Future of SIF
- Q & A



Problem Solved by SIF



Application
Integration
Without SIF

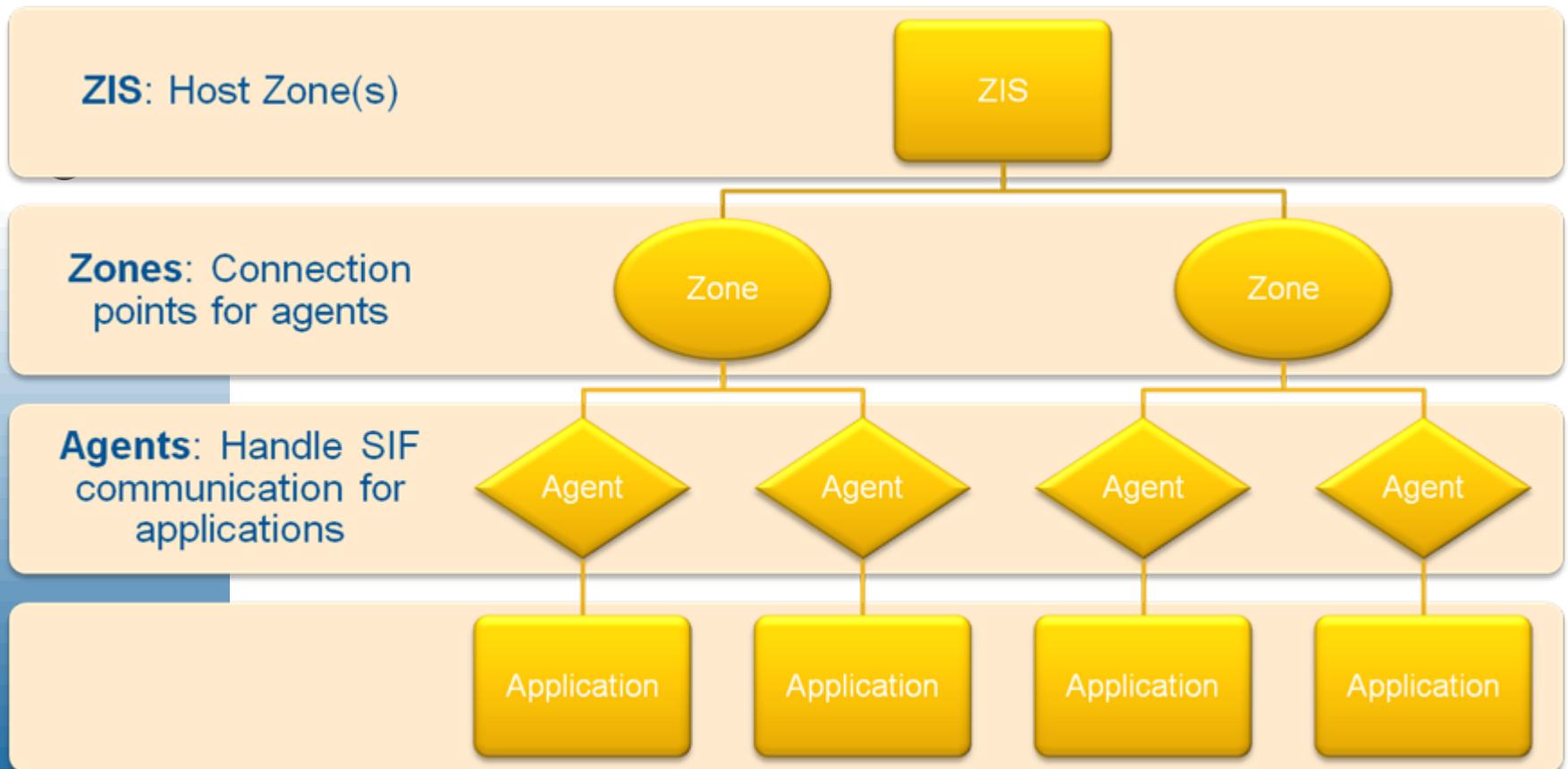


With SIF

SIF minimizes connection management risks between applications: One connection versus many.



SIF Architecture Hierarchy





Zone Integration Server (ZIS)

ZIS Highlights:

- All SIF implementations require a ZIS.
- Not a physical server, but a software middleware application.
- Abstraction layer between applications.
- Can host one or more Zones.
- Provides administration of the ZIS and hosted Zones.



Where Zones come from.



Zone

Zone Highlights:

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- Zone is the connection point for agents to exchange data.
- Zones allow for data partitioning: Data exchange is isolated within a Zone.
- Per agent security permissions via Access Control List (ACL).



Where data exchange happens.



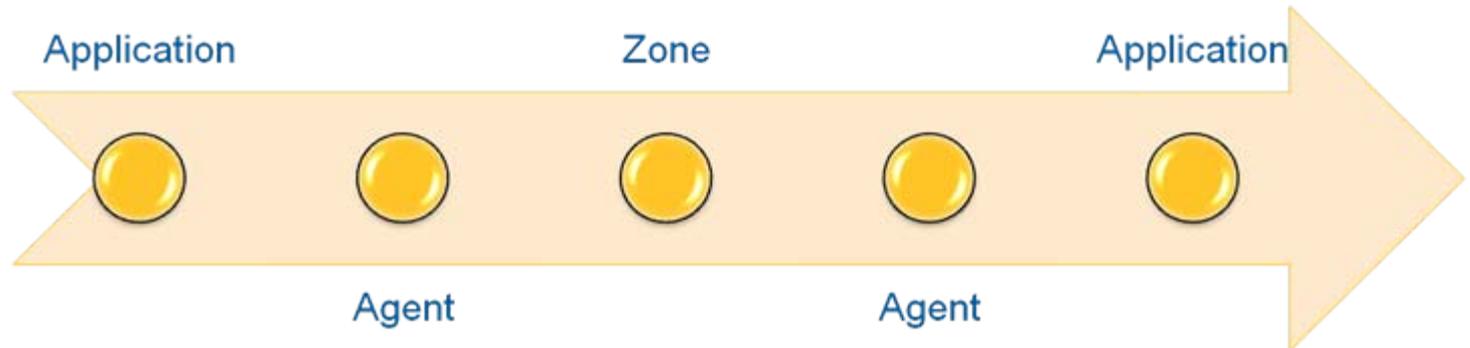
Zone Highlights (cont.)



- Queue per agent for message persistence and delivery. First In-First Out (FIFO) architecture.
- Each Zone is identified with a unique URI:
 - Eg. <https://zis:8010/Zone01>
- Each Zone has a unique identifier (SIF_SourceId):
 - Eg. Zone01



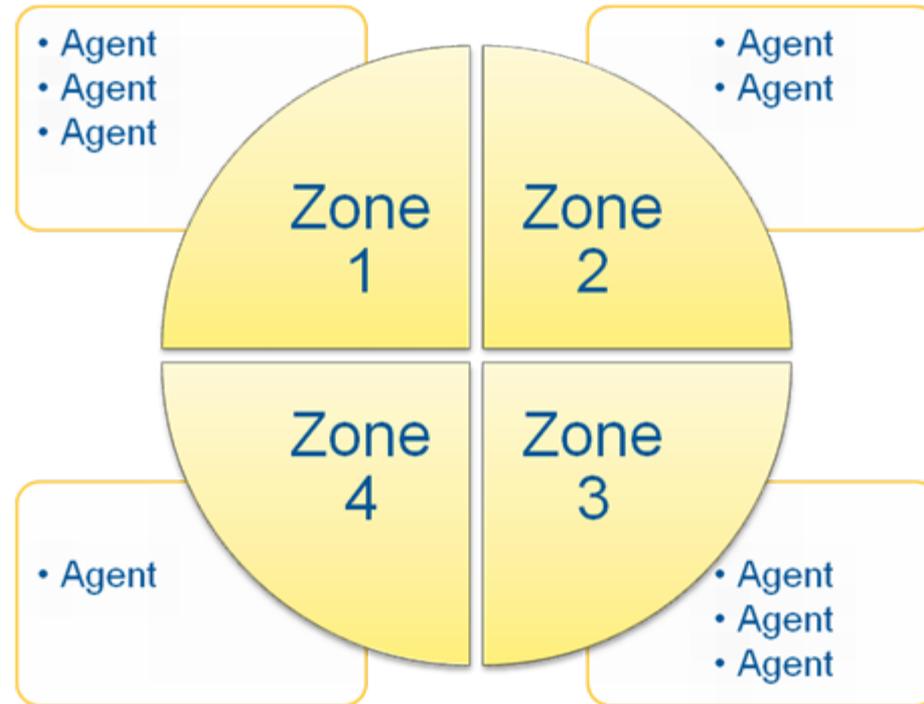
SIF Data Flow



Zone is an abstraction layer between agents and their applications.



SIF Data Flow



Data exchange is isolated and controlled within a Zone.

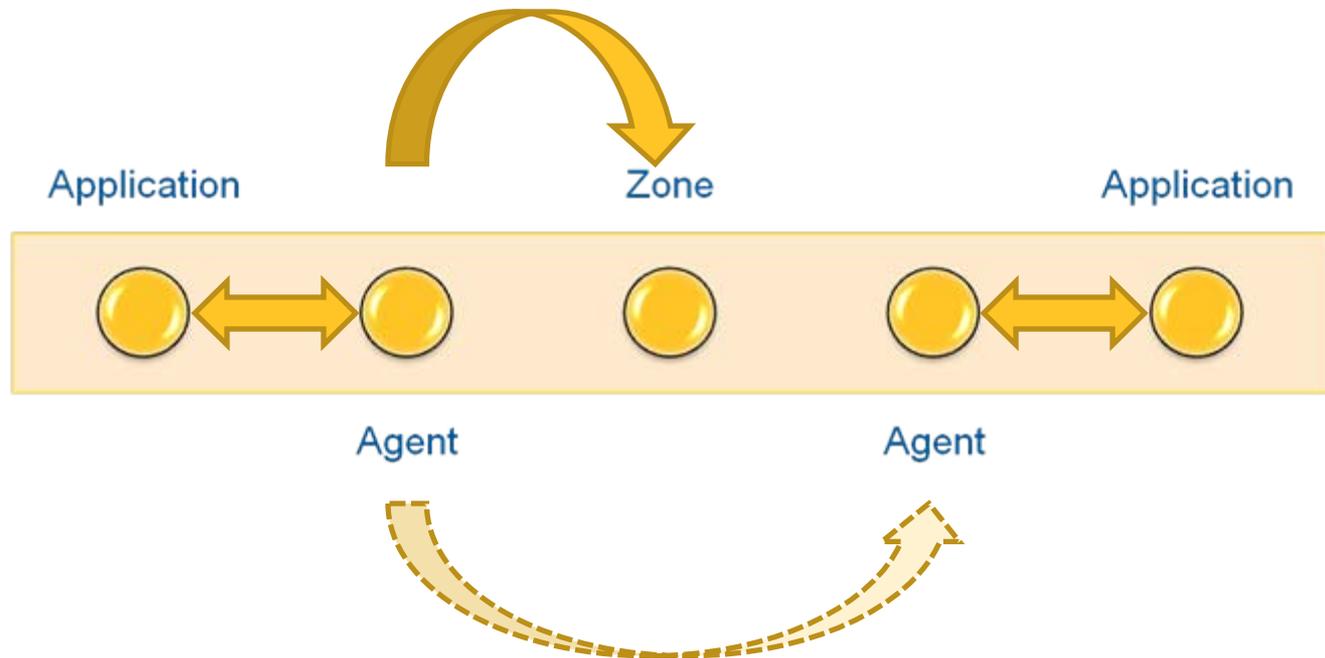


SIF Messaging

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- The overall message communication is asynchronous.
- Message communication between the Agent and the Zone (and vice versa) is synchronous.
 - HTTP request – Message
 - HTTP response – Acknowledgement



SIF Messaging

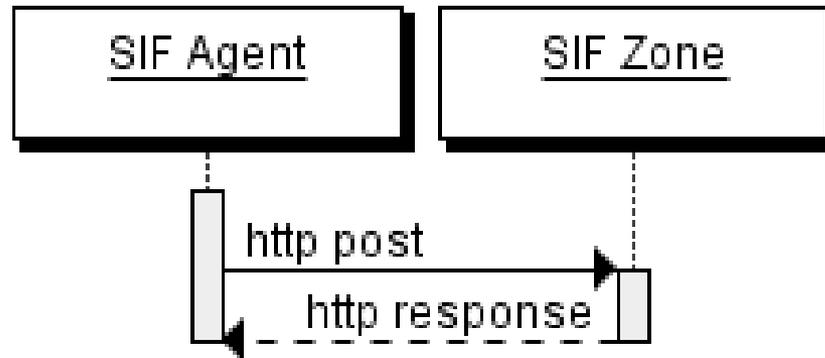


Agent-to-Zone (and vice versa) communication is synchronous. “Agent-to-Agent” communication is asynchronous.



SIF Messaging

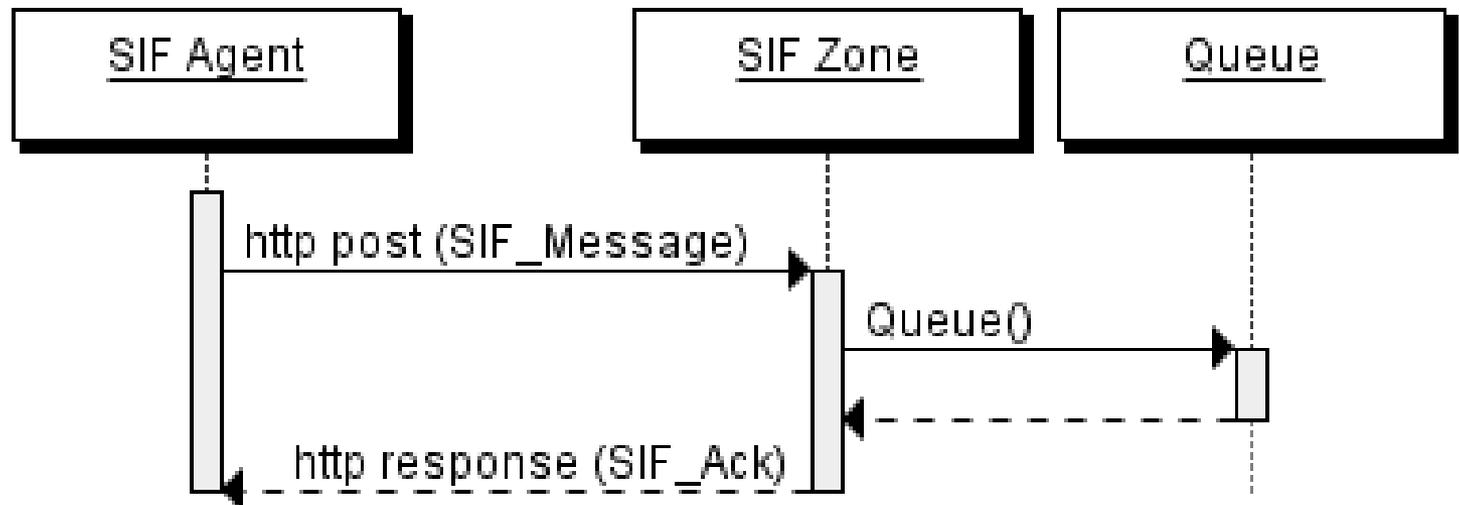
Agent-to-Zone synchronous messaging:





SIF Messaging

SIF_Event, SIF_Request,
SIF_Response:





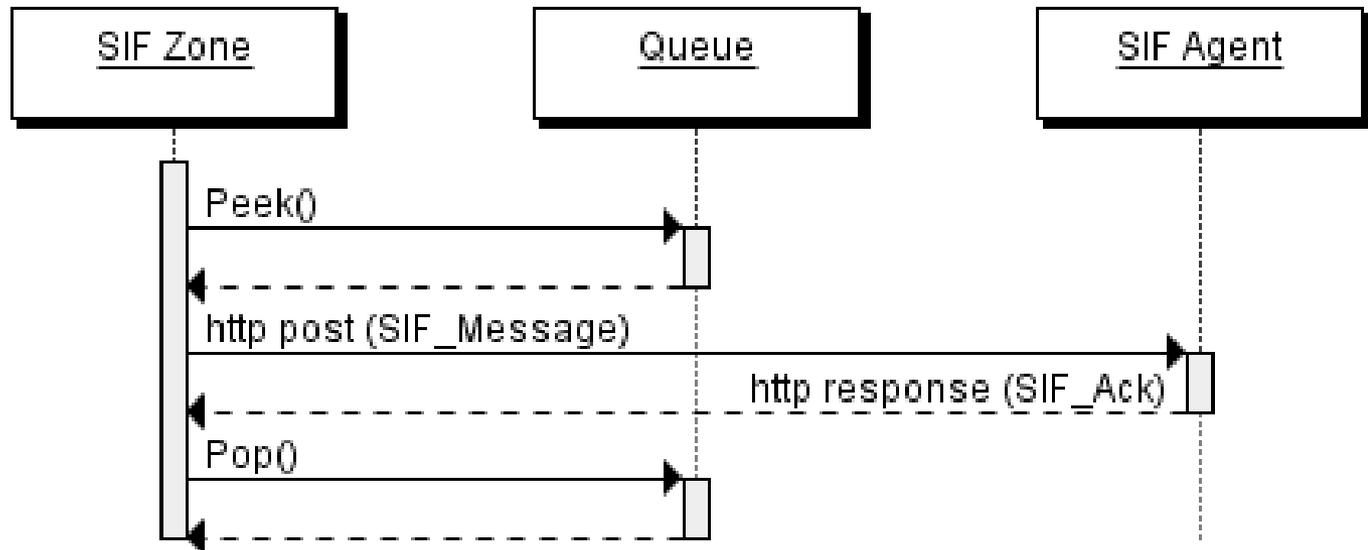
SIF Messaging

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- SIF Agent Modes
 - Push: The agent has a web service for the Zone to push messages.
 - Pull: The agent will poll the Zone to pull new messages.
- Agents can easily switch between modes.



SIF Messaging

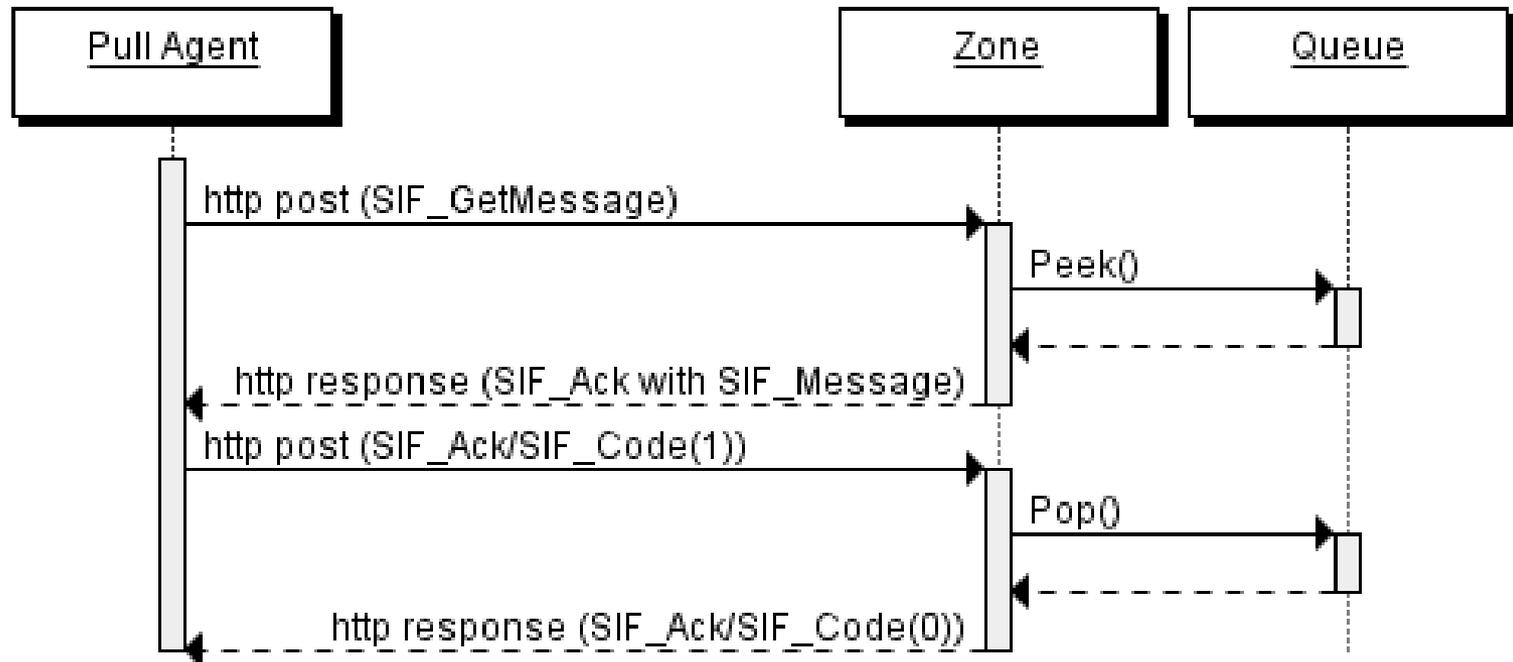
Push Mode:





SIF Messaging

Pull Mode:





SIF Messaging

- Provider publishes data changes and responds to requests for data.
- Consumer listens for data changes and request data.
- An agent may be both a provider and consumer.



SIF Messaging

○ Provider

- Initial data entry occurs here.
- Default responder in a Zone.
- Publish data changes in SIF_Event messages.
- Respond to SIF_Request messages.

○ Data Consumer

- Subscribe to SIF_Event messages for data changes.
- Use SIF_Request for data query.



Overview of SIF_Request

- Used to query another SIF Agent.
- The query is based on the SIF Data Model.
- The SIF_Response data set is based on the SIF Data Model.
- Two methods for building a query:
 - SIF_Query
 - SIF_ExtendedQuery
- SIF equivalent of the SQL Select command.



Overview of SIF_Request

- SIF_Response is the answer to a SIF_Request.
- The data returned is a snapshot of the state of data at the time the query was executed.
- The SIF_Response data can be broken down in to packets.



Overview of SIF_Event

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- Announces data changes.
- All subscribers will receive the SIF_Event message in the zone.
- What is an event?
 - Snapshot of the data
 - On each data change
- Change might contain only data that changed.



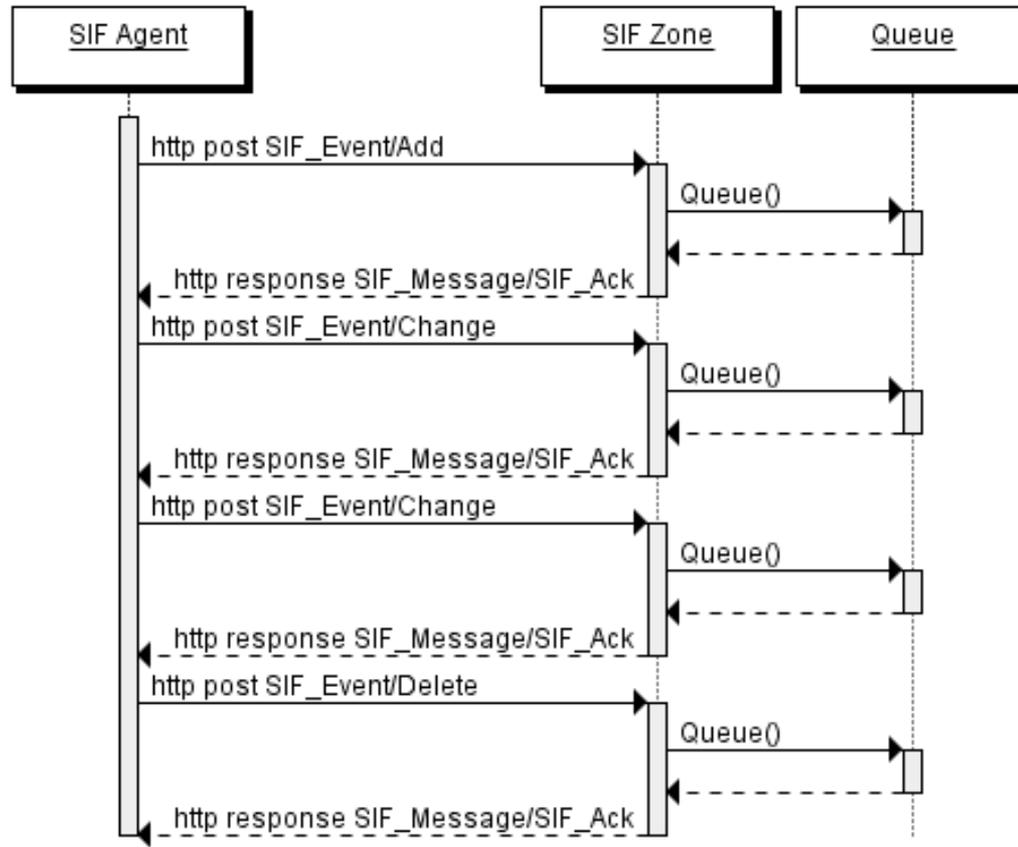
Overview of SIF_Event



- An event indicates an action:
 - Add
 - Change
 - Delete
- SIF_Event Add and Changes should not be taken literally by subscribers.
- Subscribers should check data source and determine the action based on the state of the data source.



Event Sequence





The Future of SIF

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○ SIF Zone Services

- Introduced in version 2.4
- Allows for the explicit definition of a process of action.

○ Web Services

- Using SOAP and other web service types.



Q & A

Thank you!

Larry Fruth
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