BiZdesign

ArchiMate® 3.0 Training course - Foundation

Relationships

Version 1.2 – March 2017

ArchiMate® 3.0 Relationships

Relationships Between Elements

Structural relationships

- Composition
- Aggregation
- Assignment
- Realization

Dependency relationships

- Serving
- Access
- Influence

Dynamic relationships

- Triggering
- Flow

Other relationships

- Specialization
- Association

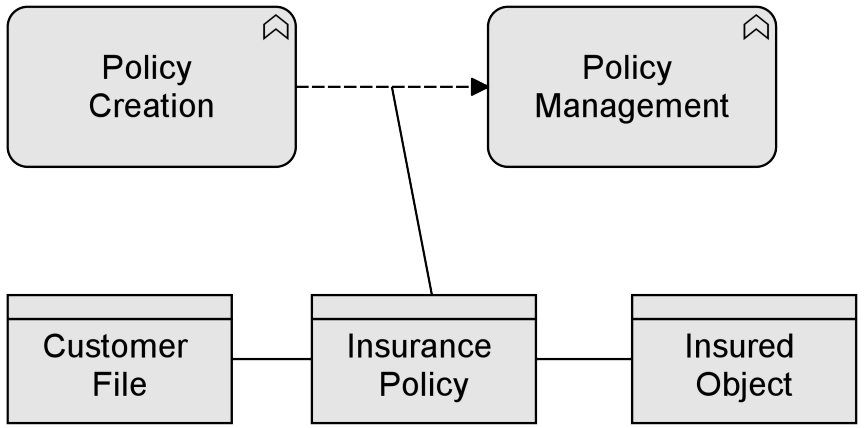
Relationship connectors

- (And) Junction
- Or Junction

Assignment: *Which relationships are we looking for on the following slides?*

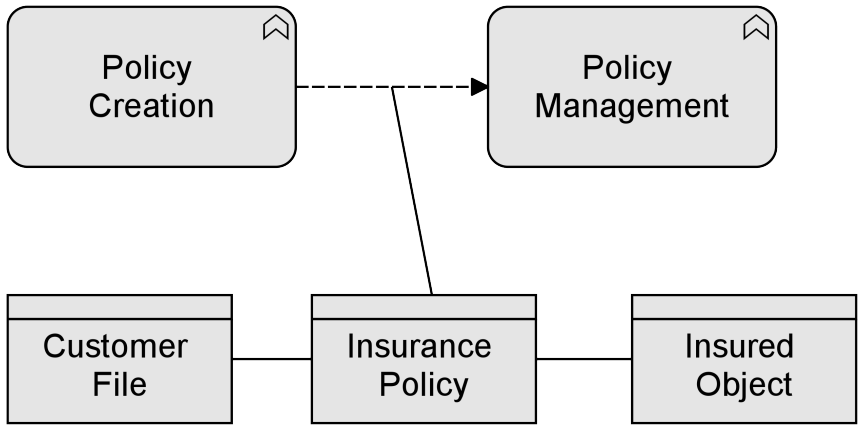
...

- "Weakest" relation
- A has an … with B: A has some relationship with B
- An … relationship is always allowed between two elements, or between a relationship and an element.
- An … models an unspecified relationship, or one that is not represented by another ArchiMate relationship.



Association Relationship

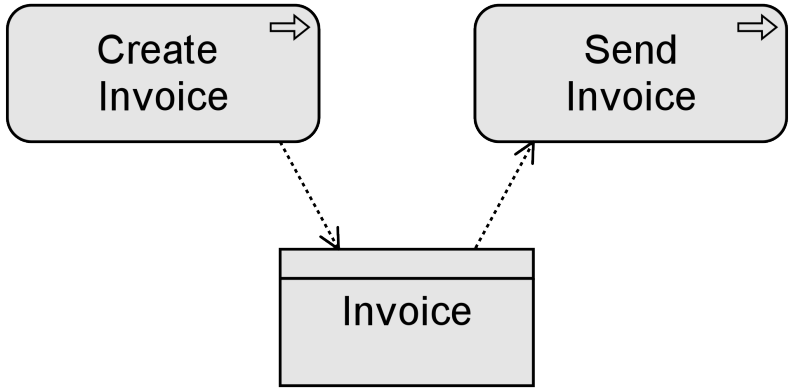
- "Weakest" relation
- A has an association with B: A has some relationship with B
- An association relationship is always allowed between two elements, or between a relationship and an element.
- An association models an unspecified relationship, or one that is not represented by another ArchiMate relationship.



…

- The … relationship models the ability of behavior and active structure elements to observe or act upon passive structure elements.
- The … relationship indicates that a process, function, interaction, service, or event "does something" with a passive structure element

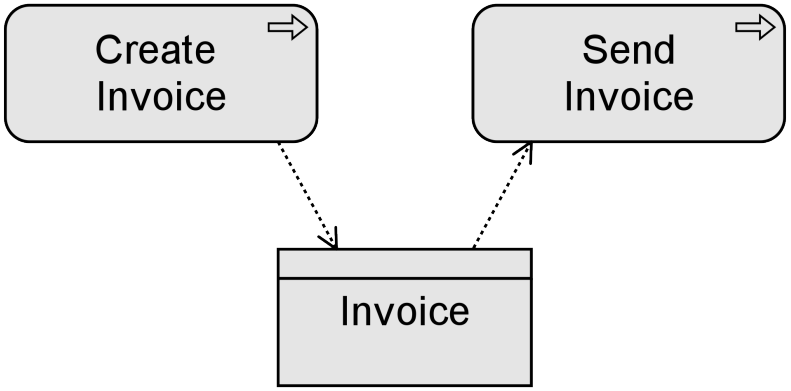
- Typically between behavior or active structure concepts and passive structure concepts in the same layer



Access Relationship

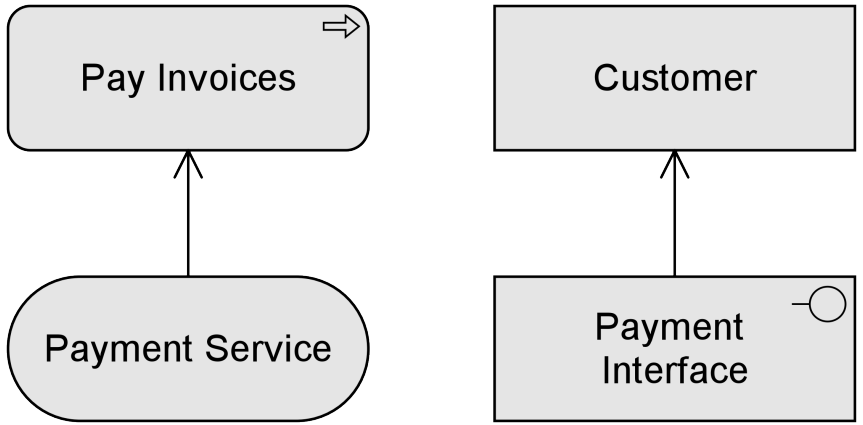
- The access relationship models the ability of behavior and active structure elements to observe or act upon passive structure elements.
- The access relationship indicates that a process, function, interaction, service, or event "does something" with a passive structure element

- Typically between behavior or active structure concepts and passive structure concepts in the same layer



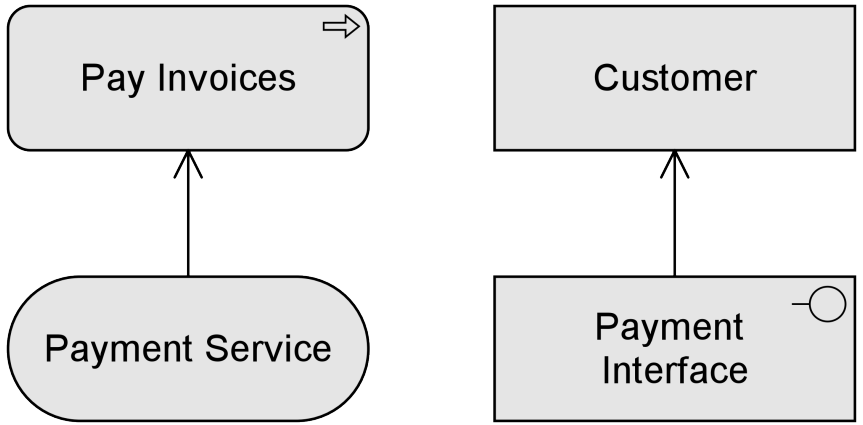
...

- The … relationship models that an element provides its functionality to another element.
- Object A … Object B
- Typically to model how services or interfaces … entities in their environment
- Applied for behavior and structure elements



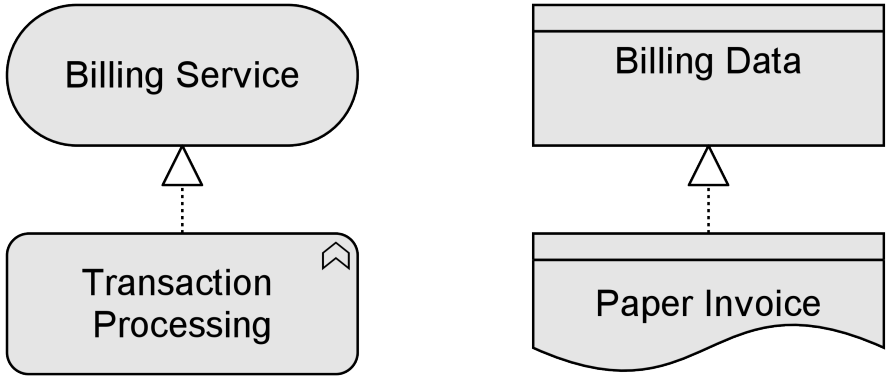
Serving Relationship

- The serving relationship models that an element provides its functionality to another element.
- Object A serves Object B
- Typically to model how services or interfaces serve entities in their environment
- Applied for behavior and structure elements



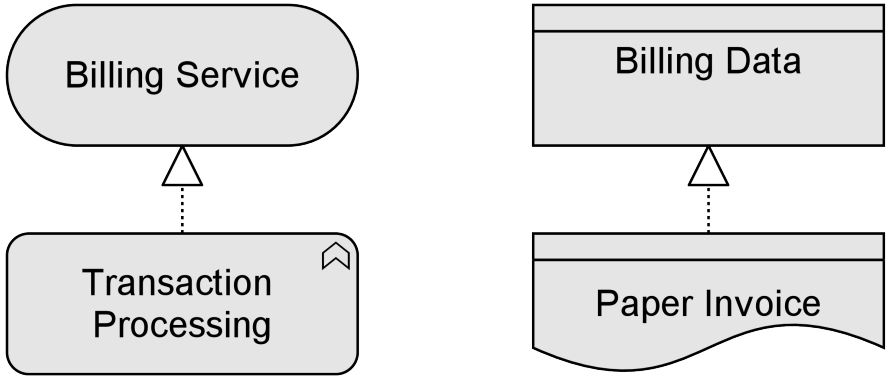
...

- The … relationship indicates that an entity plays a critical role in the creation, achievement, sustenance, or operation of a more abstract entity.
- The … relationship indicates that more abstract entities (“what” or “logical”) are … by means of more tangible entities (“how” or “physical”).



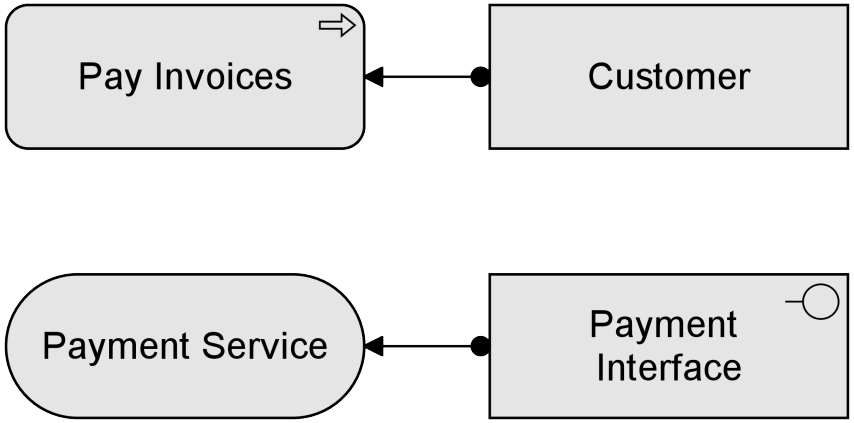
Realization Relationship

- The realization relationship indicates that an entity plays a critical role in the creation, achievement, sustenance, or operation of a more abstract entity.
- The realization relationship indicates that more abstract entities (“what” or “logical”) are realized by means of more tangible entities (“how” or “physical”).



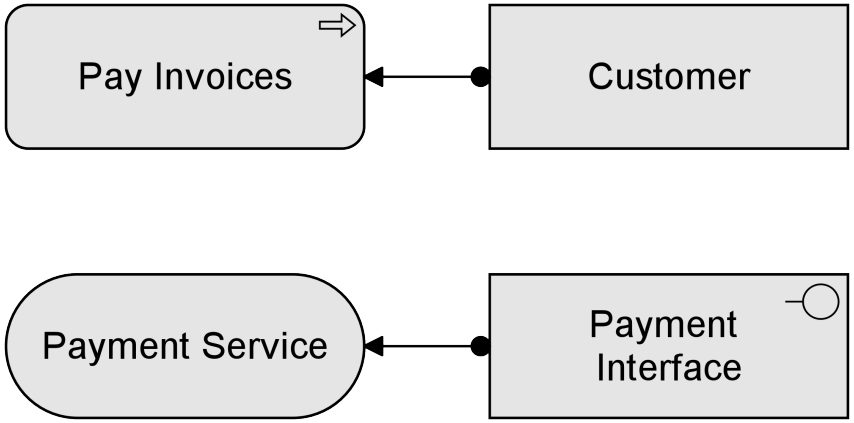
...

- The … relationship expresses the allocation of responsibility, performance of behavior, or execution
- Relates structure elements to behavior elements
- Actor A is responsible for Process X
- Application B executes Application function Y
- Actor A is … to Role B



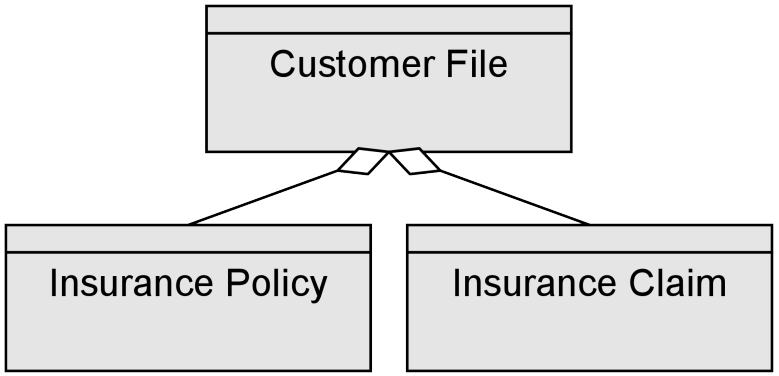
Assignment Relationship

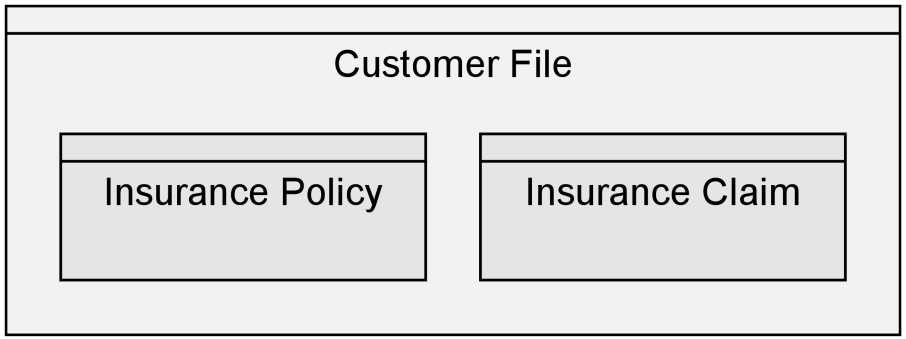
- The assignment relationship expresses the allocation of responsibility, performance of behavior, or execution
- Relates structure elements to behavior elements
- Actor A is responsible for Process X
- Application B executes Application function Y
- Actor A is assigned to Role B



...

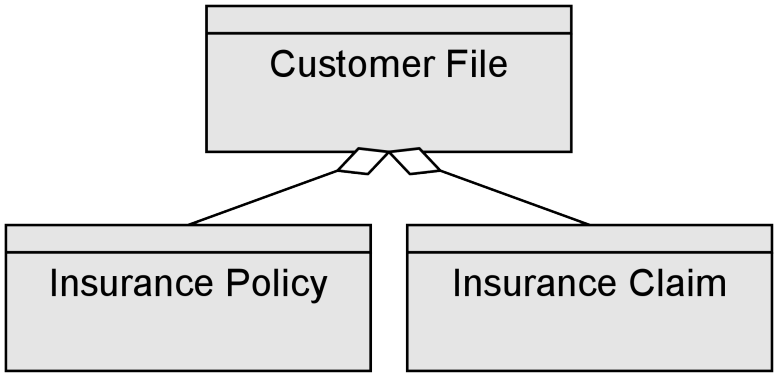
- The … relationship indicates that an element groups a number of other elements.
- An … relationship is always allowed between two instances of the same element type.

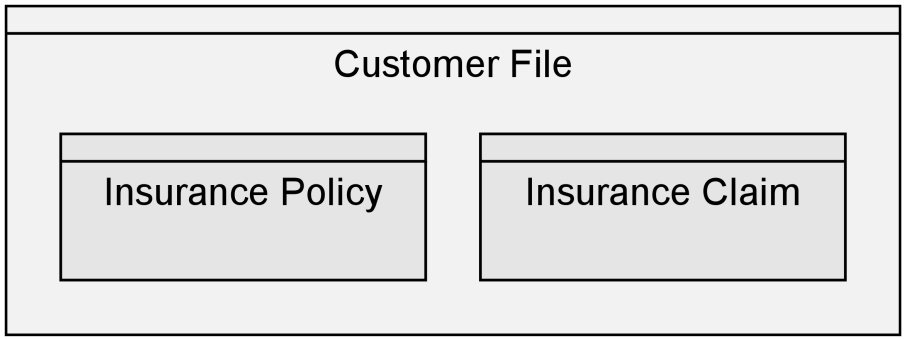




Aggregation Relationship

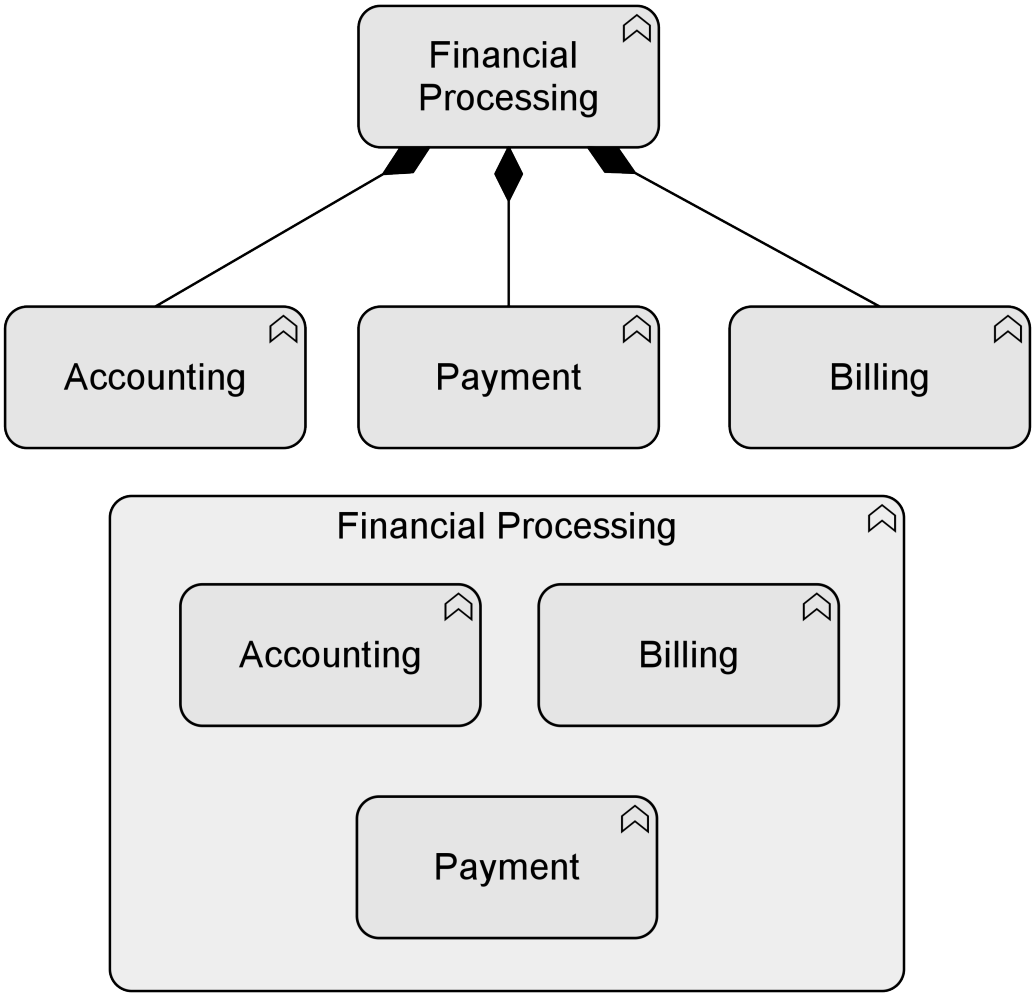
- The aggregation relationship indicates that an element groups a number of other elements.
- An aggregation relationship is always allowed between two instances of the same element type.





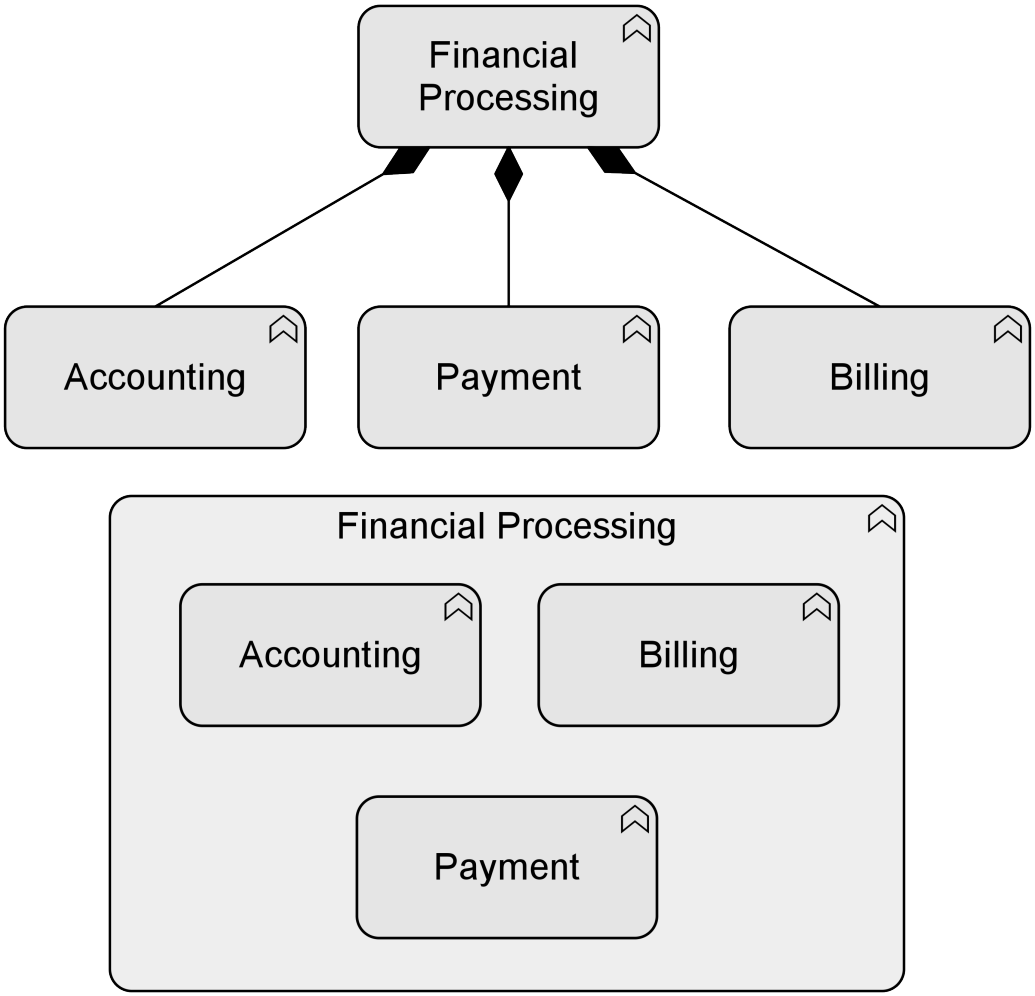
...

- The … relationship indicates that an element consists of one or more other elements.
- A … relationship is always allowed between two instances of the same element type.



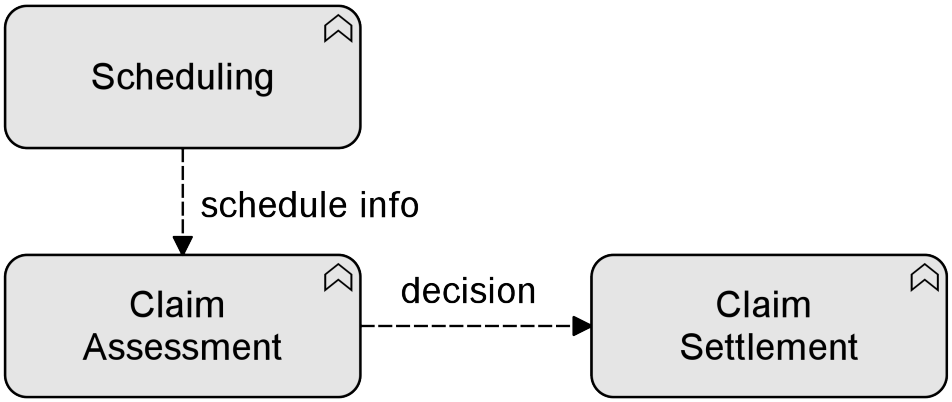
Composition Relationship

- The composition relationship indicates that an element consists of one or more other elements.
- A composition relationship is always allowed between two instances of the same element type.



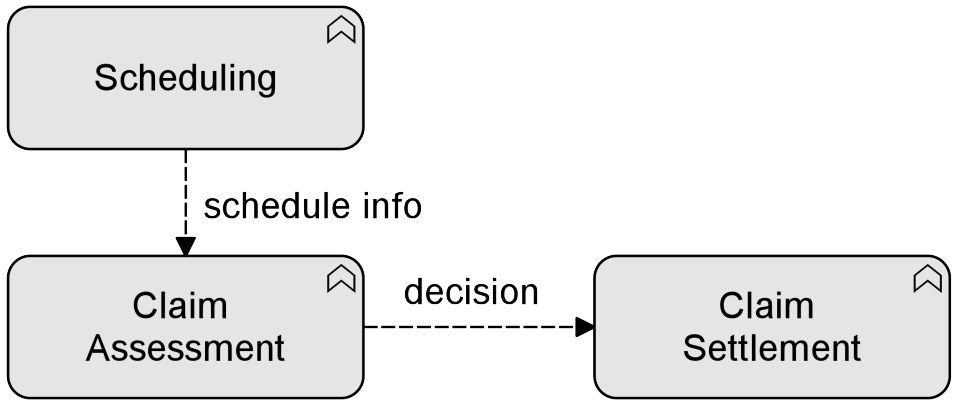
...

- The … relationship represents transfer from one element to another
- The … relationship is used to model the … of, for example, information, goods, or money between behavior elements.
- A … relationship does not imply a causal relationship.



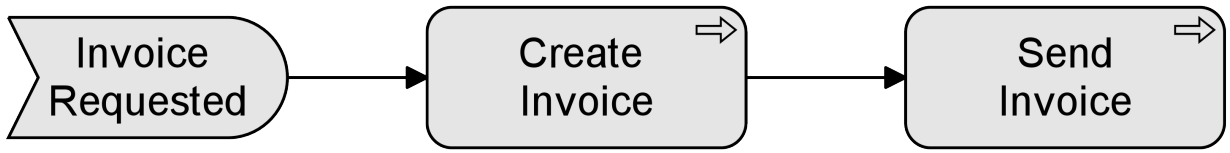
Flow Relationship

- The flow relationship represents transfer from one element to another
- The flow relationship is used to model the flow of, for example, information, goods, or money between behavior elements.
- A flow relationship does not imply a causal relationship.



...

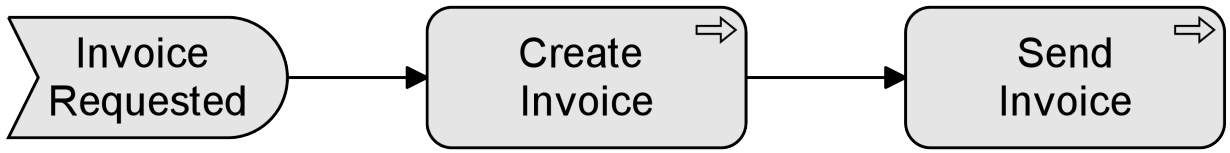
- The … relationship describes a temporal or causal relationship between elements



- For example: When one process is completed, the next one starts
- Between behavior elements

Triggering Relationship

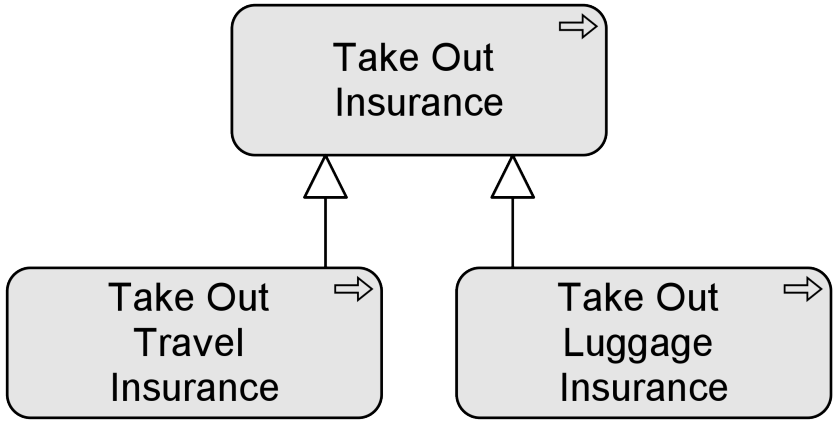
- The triggering relationship describes a temporal or causal relationship between elements



- For example: When one process is completed, the next one starts
- Between behavior elements

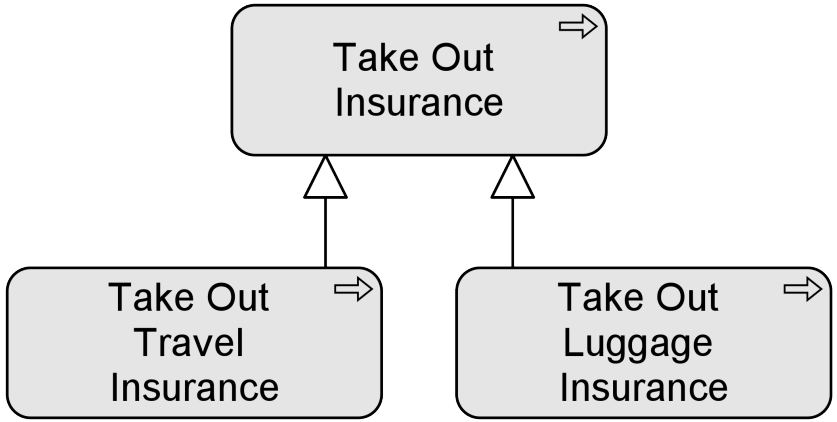
…

- The … relationship indicates that an element is a particular kind of another element
- The … relationship can relate any instance of a concept with another instance of the same concept



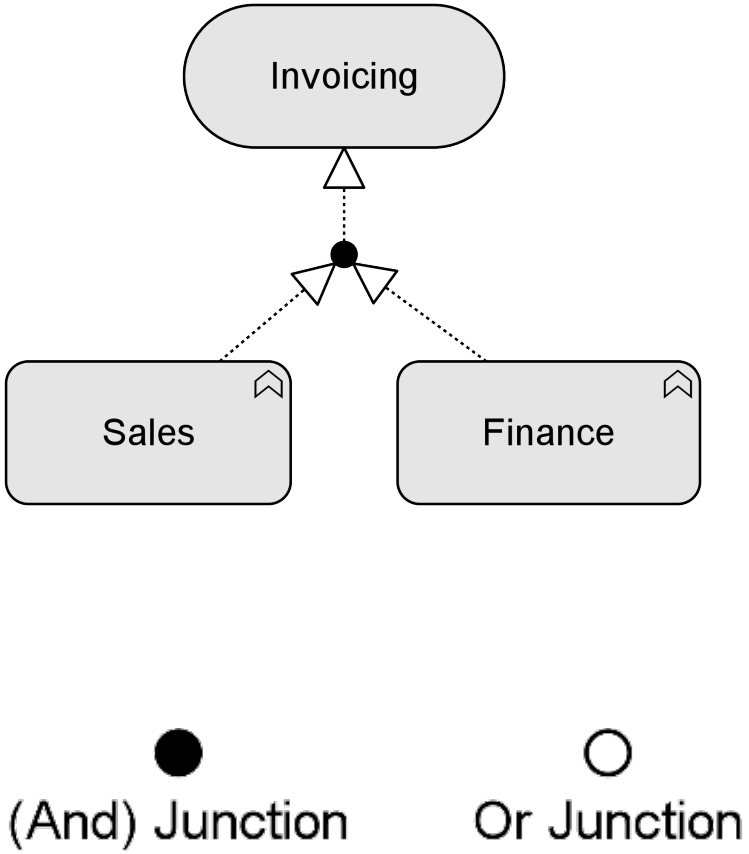
Specialization Relationship

- The specialization relationship indicates that an element is a particular kind of another element
- The specialization relationship can relate any instance of a concept with another instance of the same concept

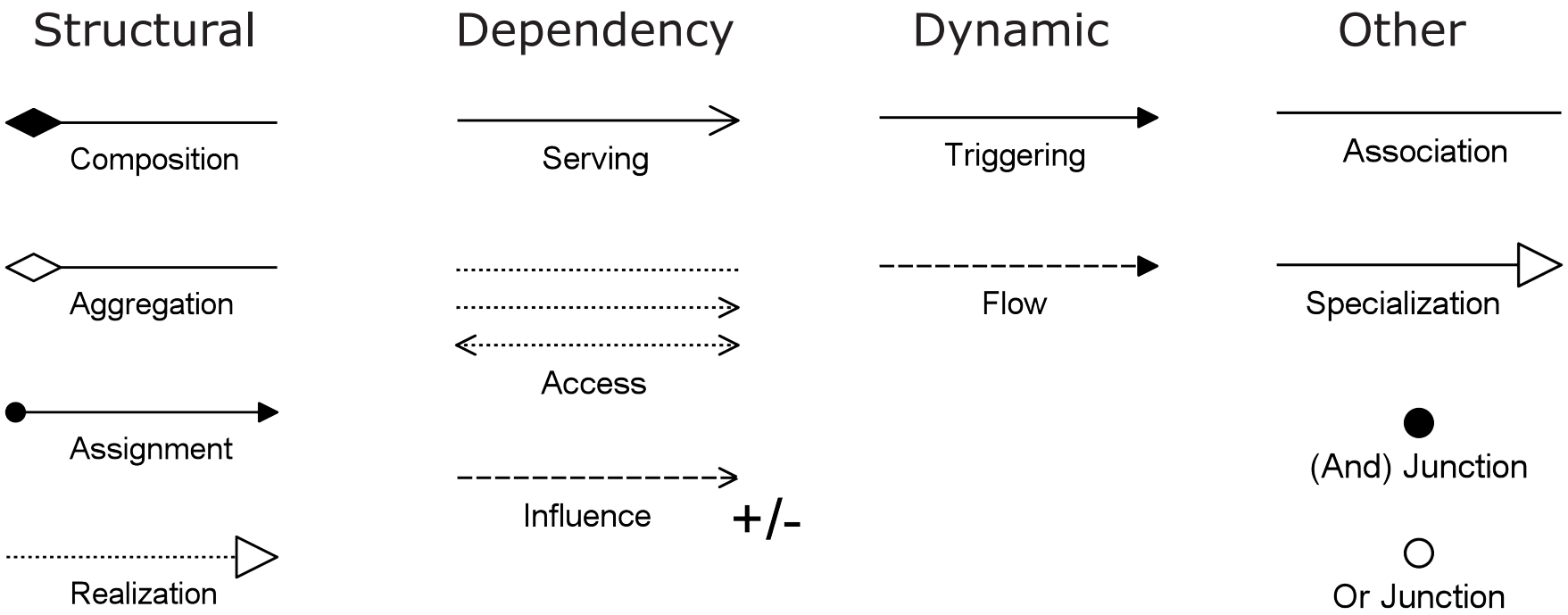


Junction

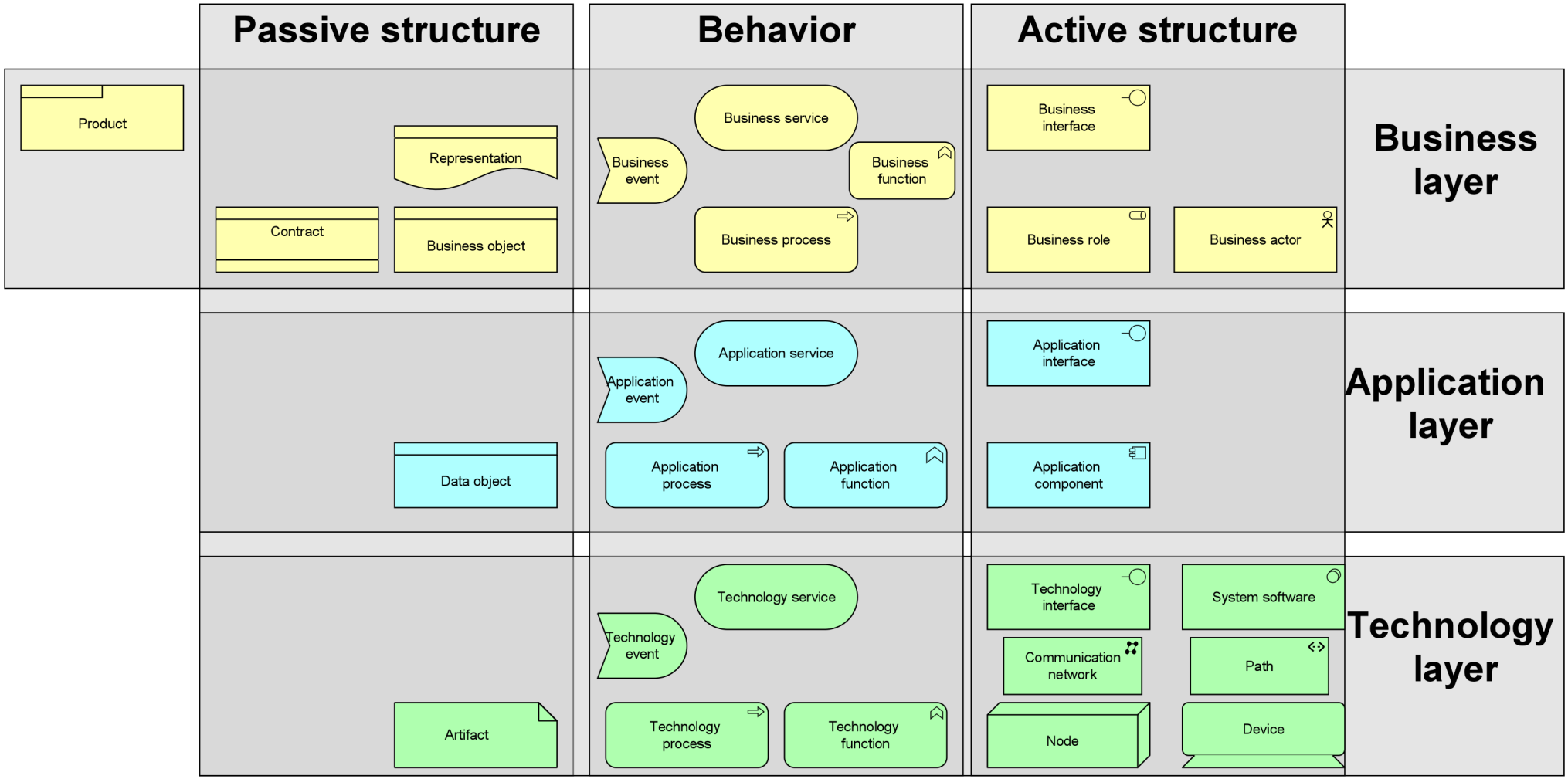
- A junction is used to connect relationships of the same type
- A junction is not an actual relationship, but rather a relationship connector
- A junction is used to explicitly express that several elements *together* participate in the relationship (*and* junction) or that *one of* the elements participates in the relationship (*or* junction)



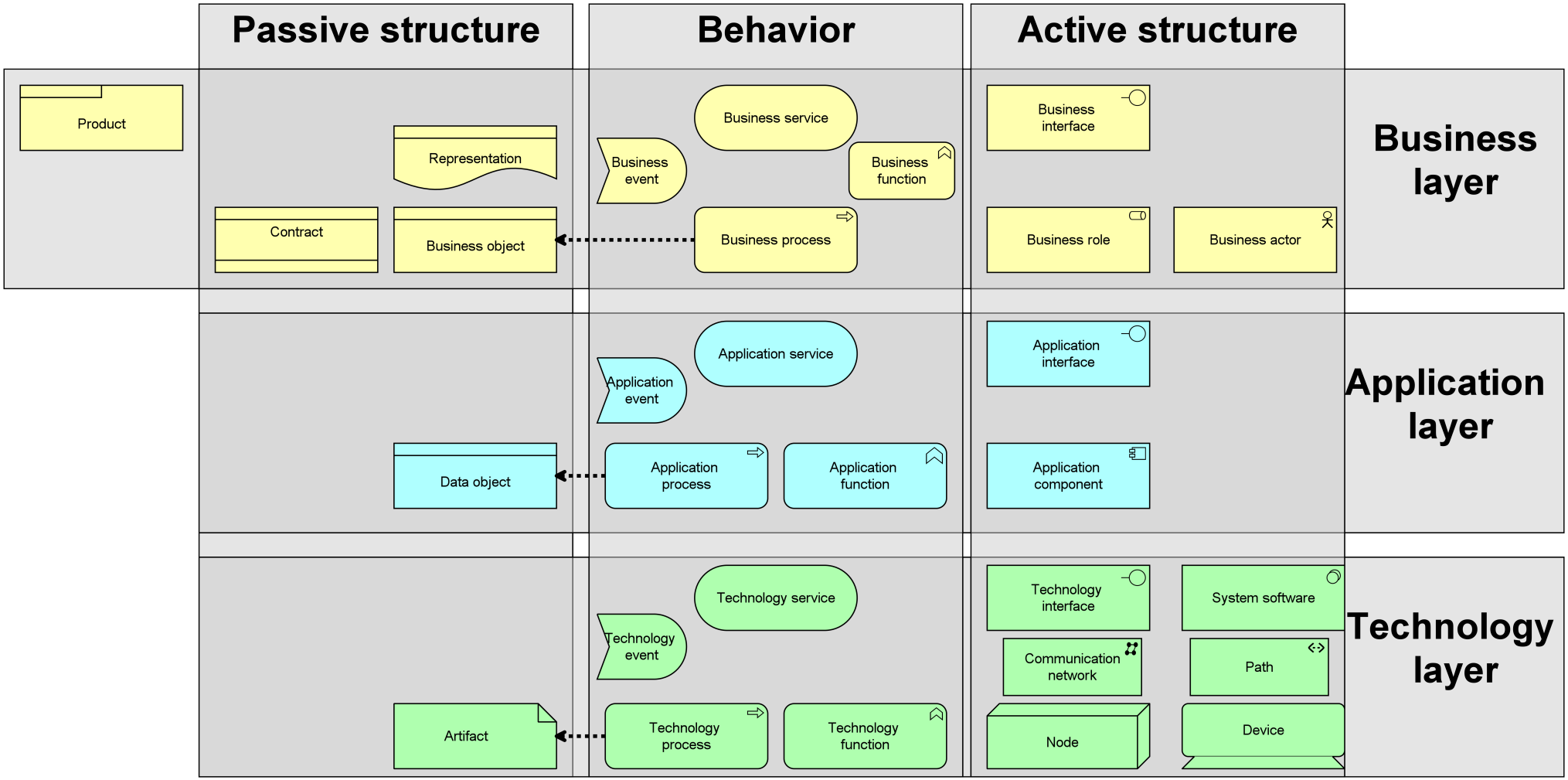
Relationships Overview



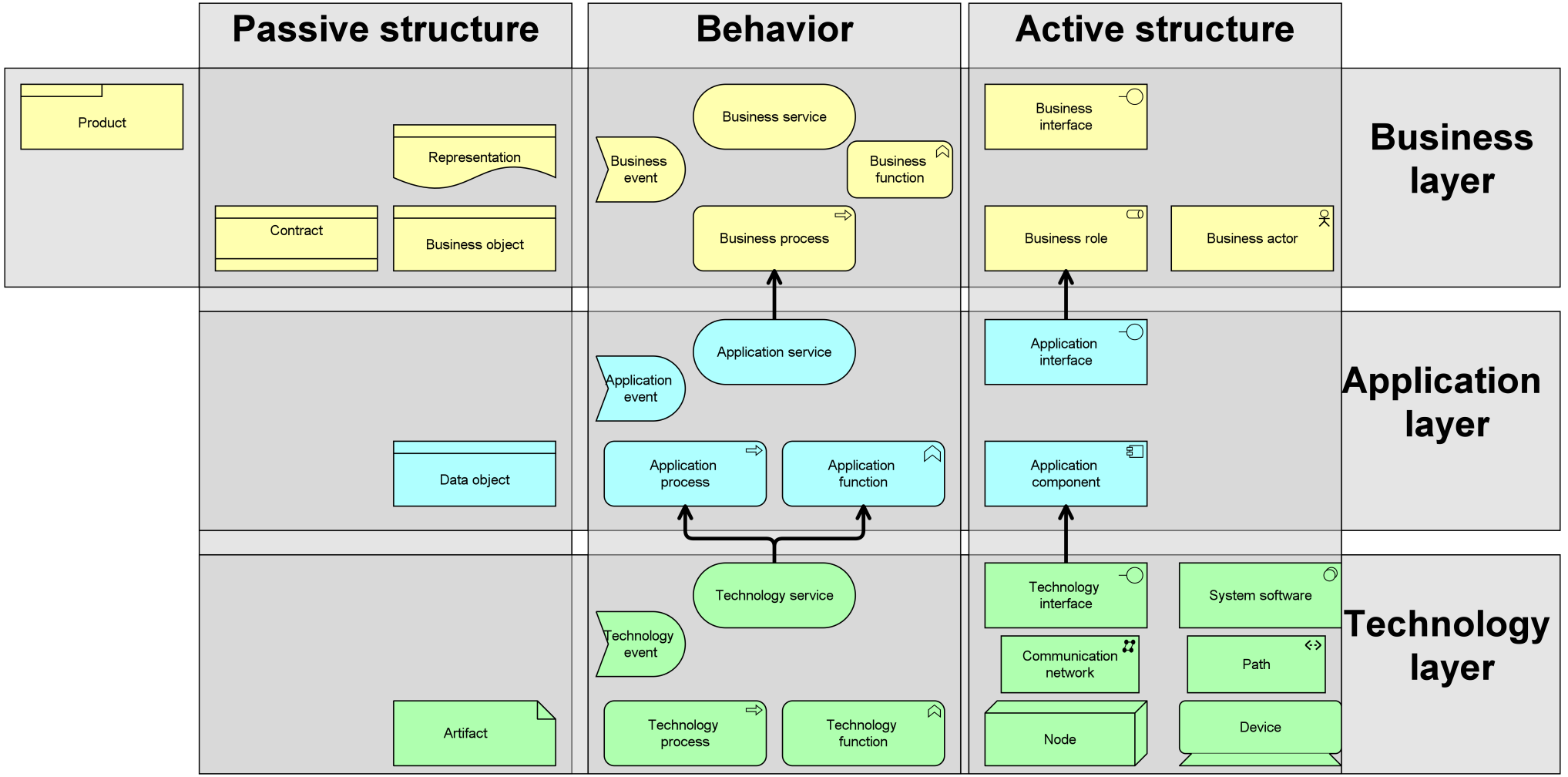
Elements & Relationships



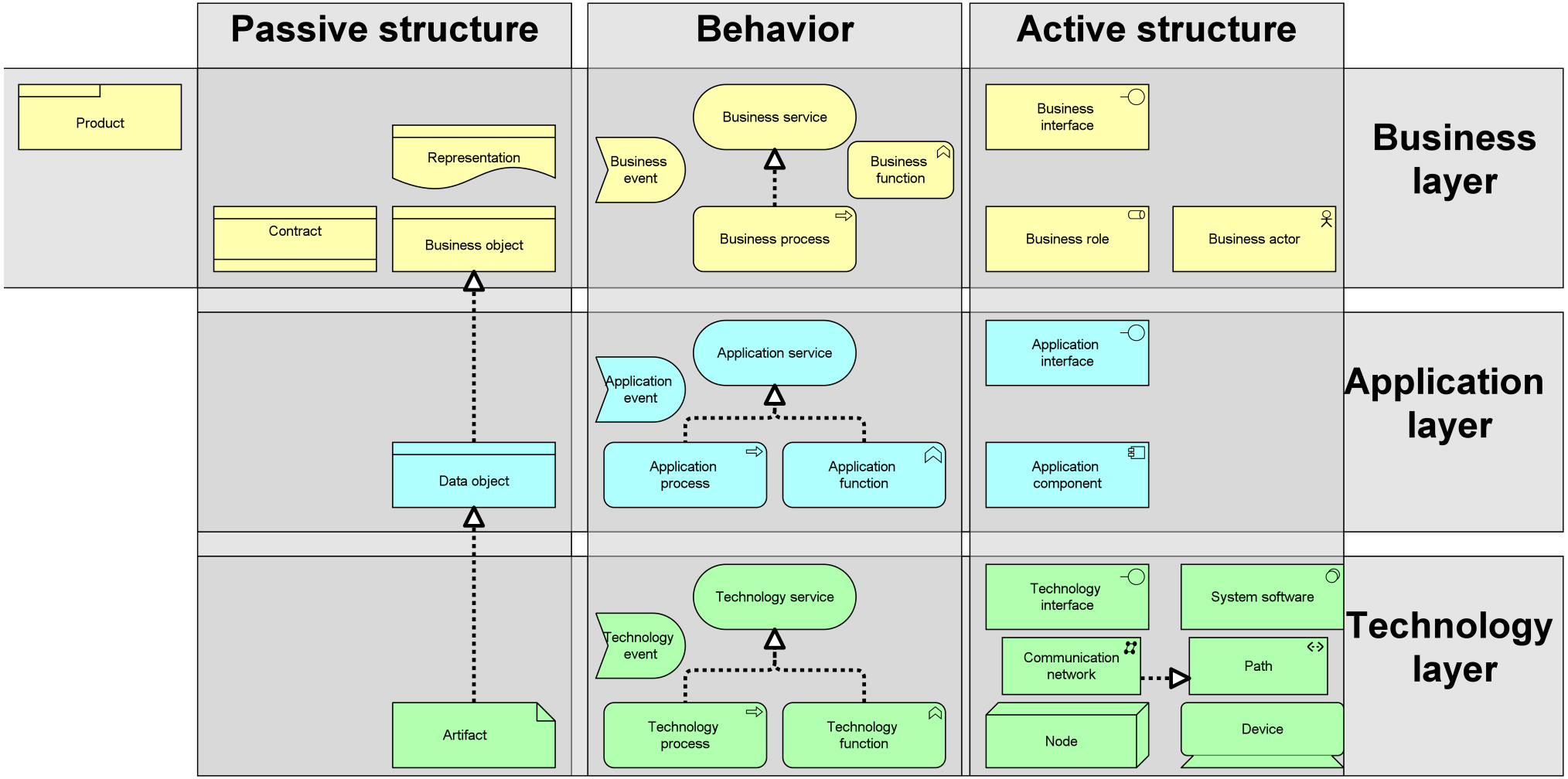
Access Relationship



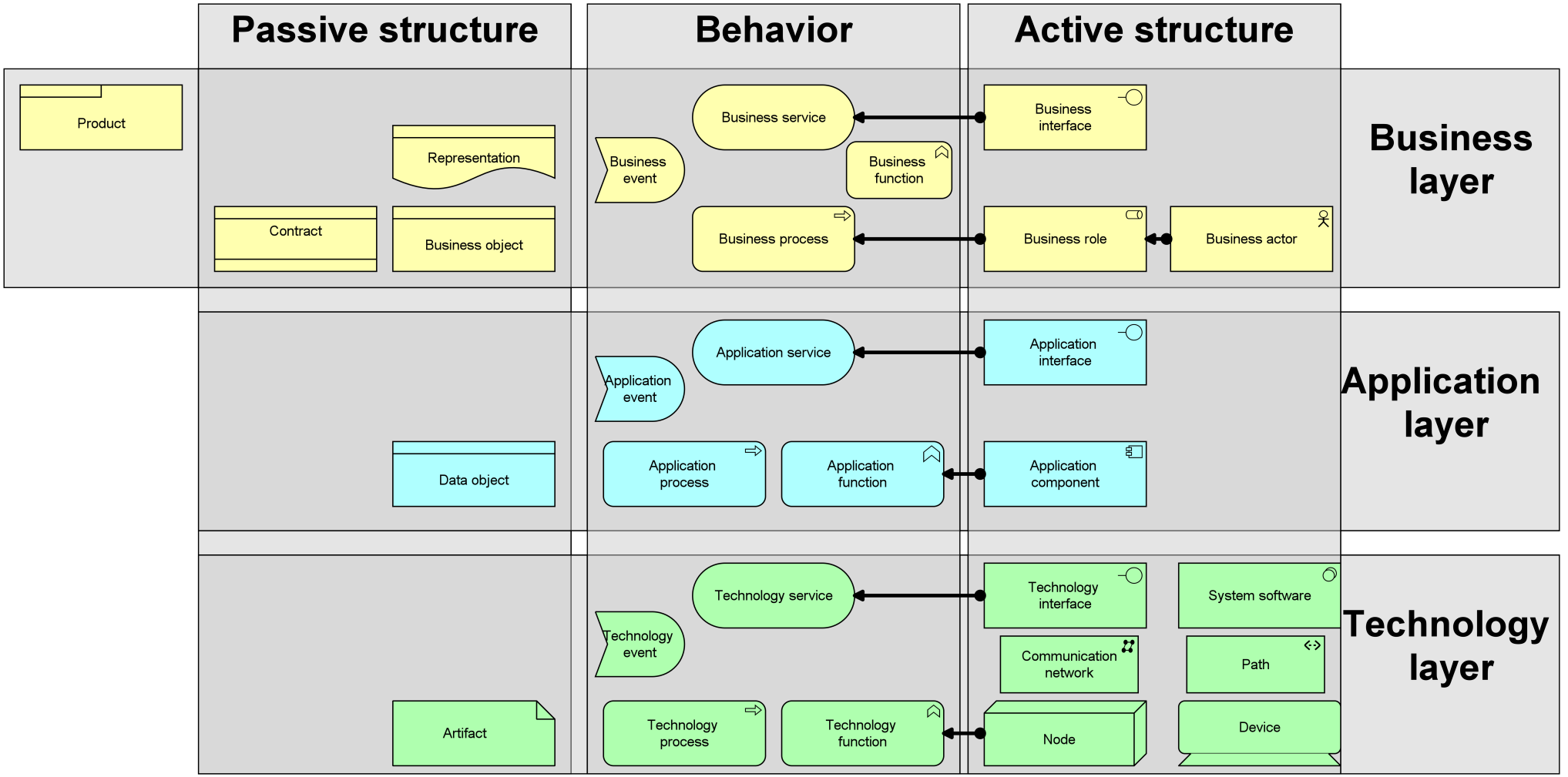
Serving Relationship



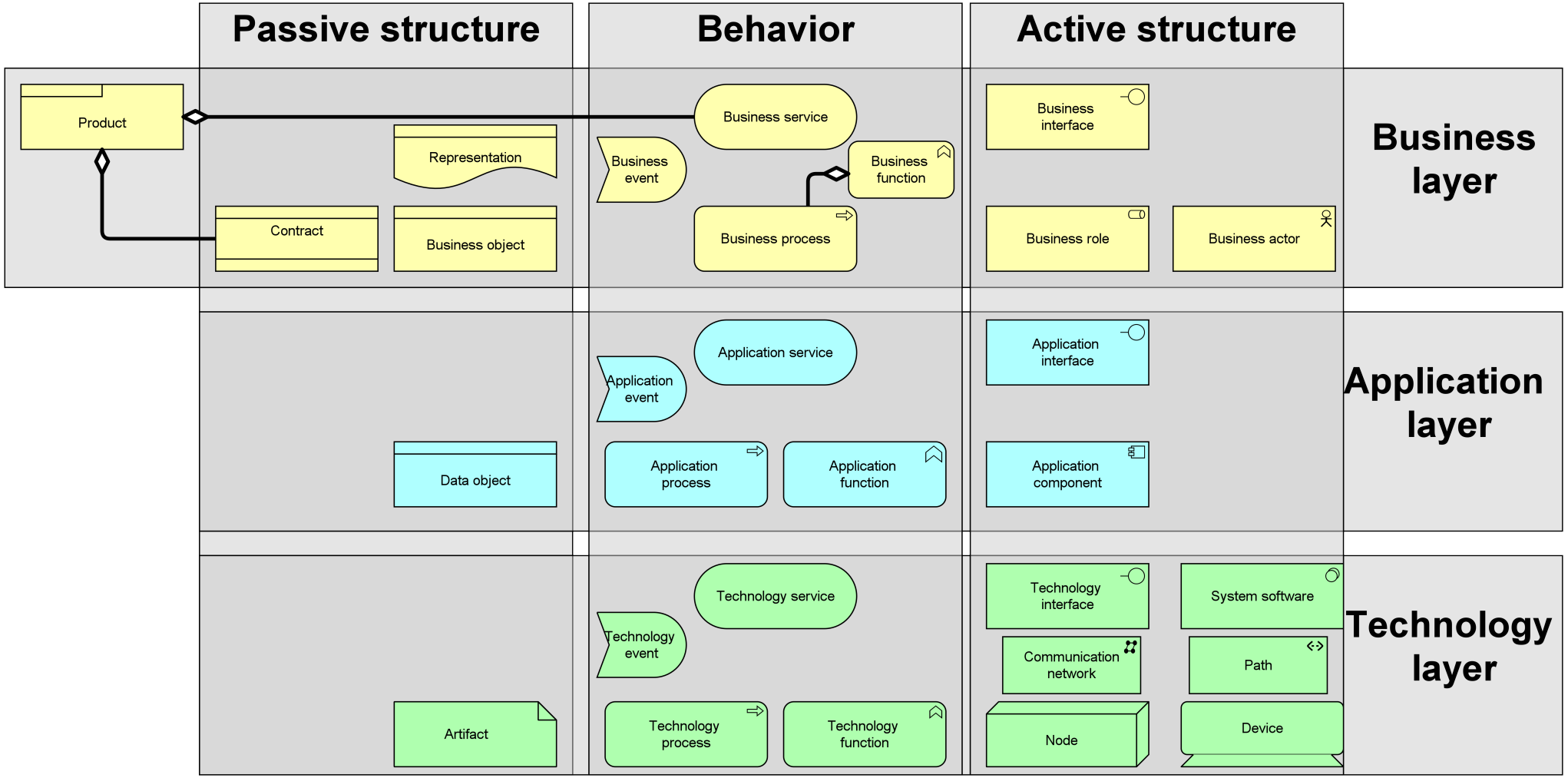
Realization Relationship



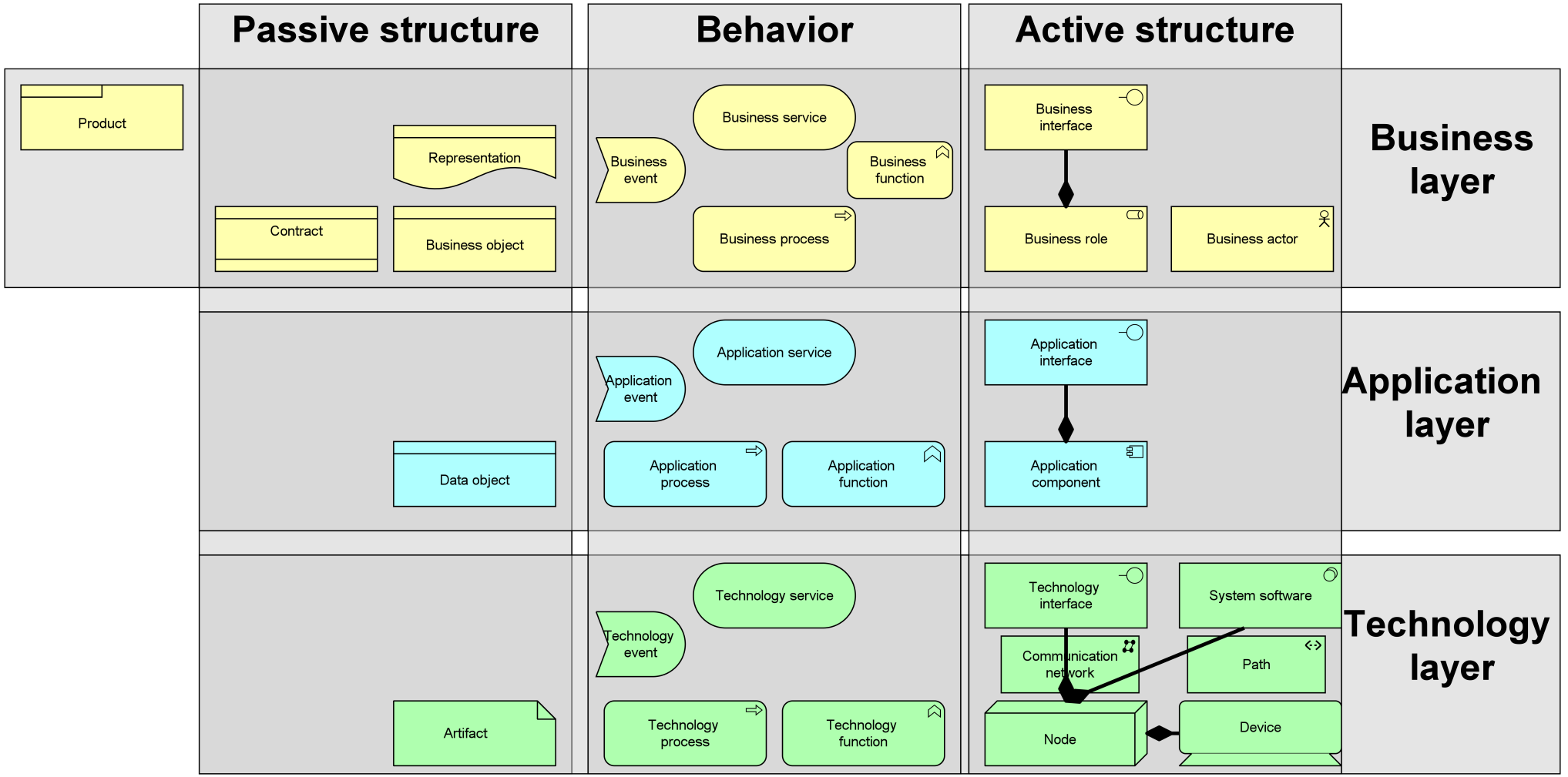
Assignment Relationship



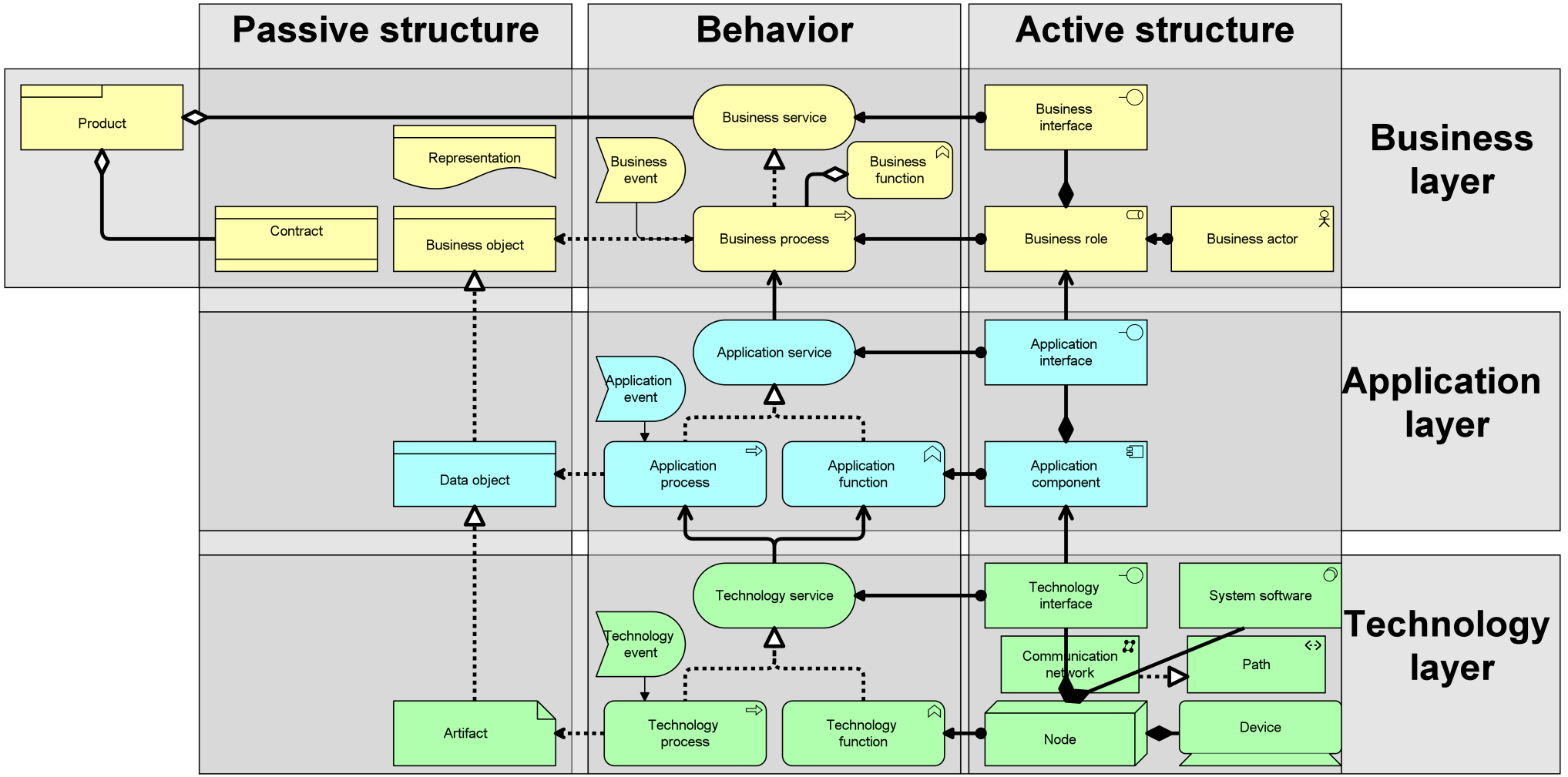
Aggregation Relationship



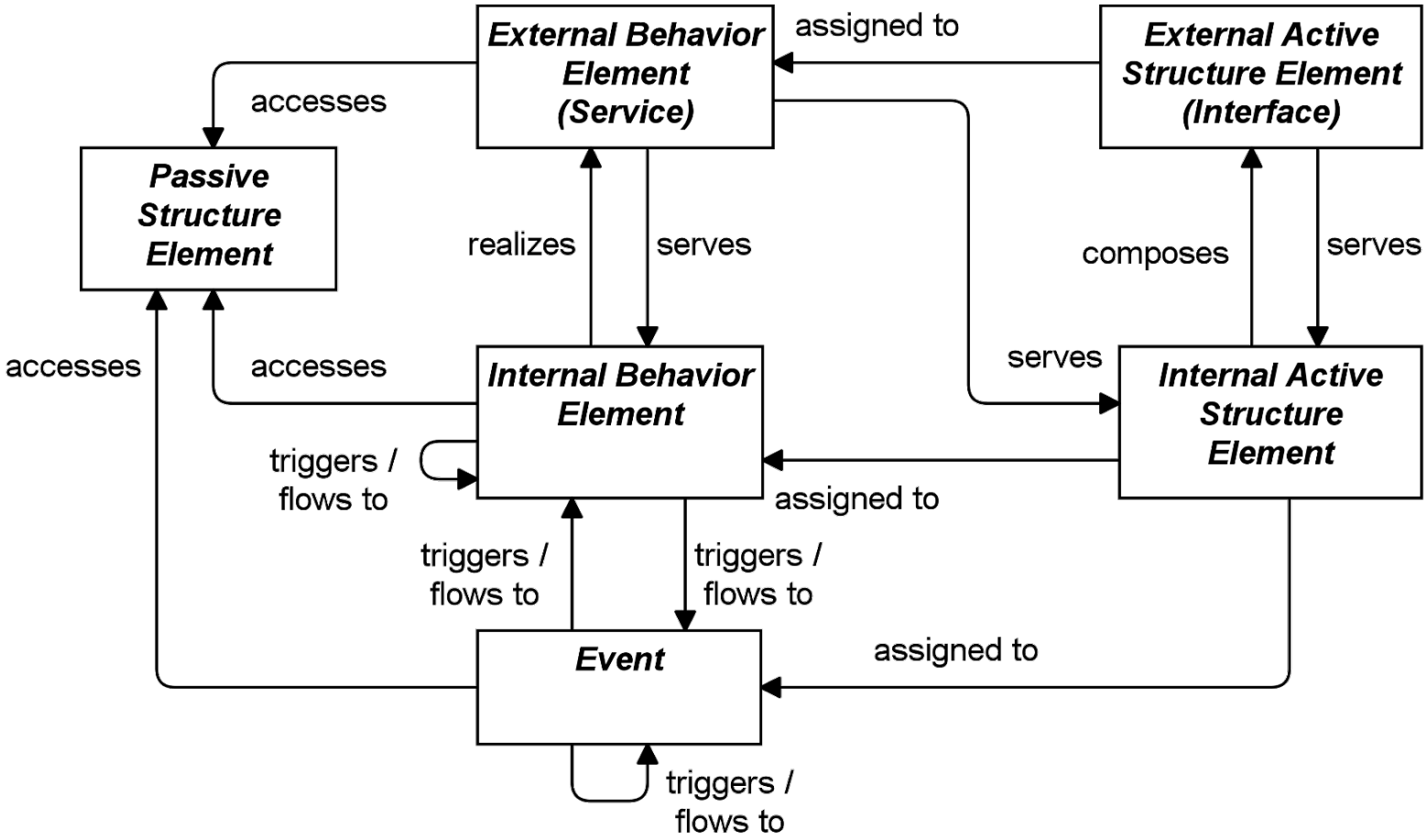
Composition Relationship



ArchiMate® Relationships



Structure on Every Layer



Exercise

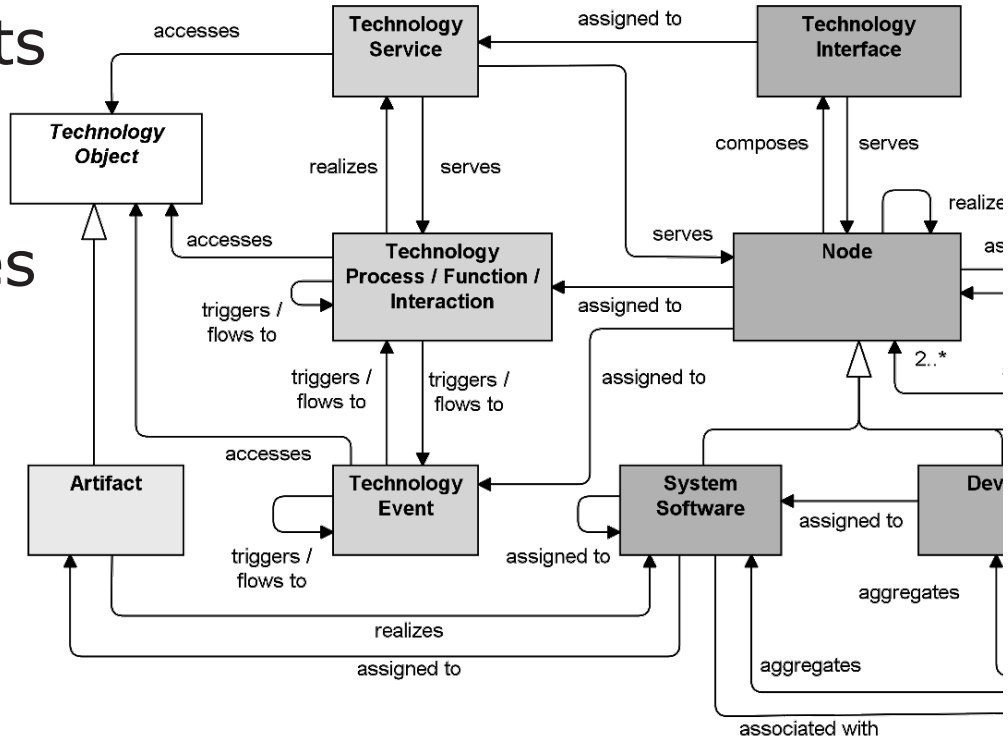
- Case ‘ArchiSurance’
- Reader assignment 1.4

Concepts and Their Notation

- Standard provides a prefered notation
  - But only to be used if understood by the audience
- Notation is targeted towards an audience used to existing technical modeling
  - ERD, UML or BPMN
  - Therefore resembles them

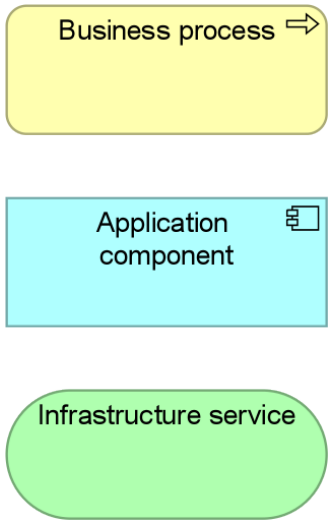
Metamodel Colors

- White
  - for abstract (i.e., non-instantiable) concepts
- Light grey
  - for passive structures
- Medium grey
  - for behavior
- Dark grey
  - for active structures



Colors in ArchiMate®

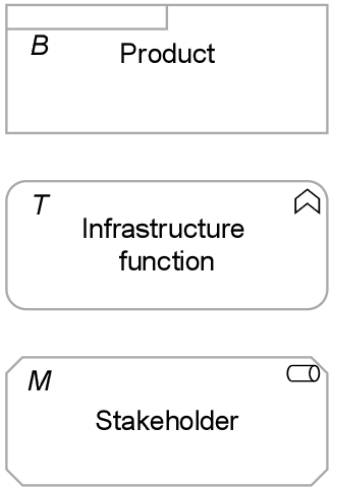
- No formal semantics assigned to colors
- The use of color is left to the modeler
  - can be used freely to stress certain aspects in models



- Yellow, blue and green commonly used

Notational Cues

- Letter ‘M’, ‘S’, ‘B’, ‘A’, ‘T’, ‘P’, or ‘I’ in the top-left corner of an element (optional)
  - denote a Motivation, Strategy, Business, Application, Technology, Physical, or Implementation & Migration element
- Shape of the corners of symbols
  - Square corners for structure elements
  - Round corners for behavior elements
  - Diagonal corners for motivation elements



Abstraction

- External vs. Internal

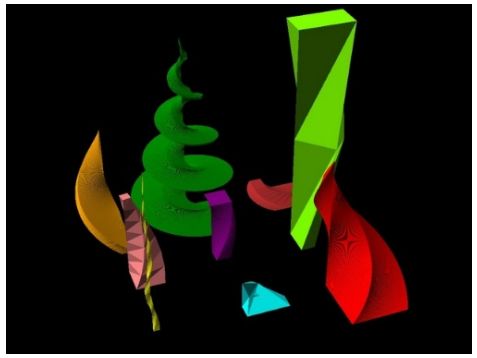
- External view shows what the system has to do for its environment
- Internal depicts how it does this

Abstraction

- Active vs. Behavior

- Separate what the system must do (behavior) and how the system does this from the entities doing it (active structure)

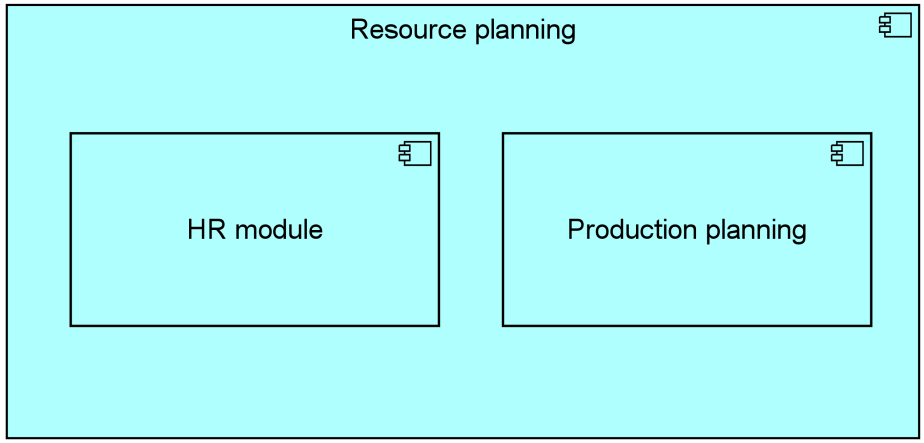
Abstraction



- Conceptual, logical and physical

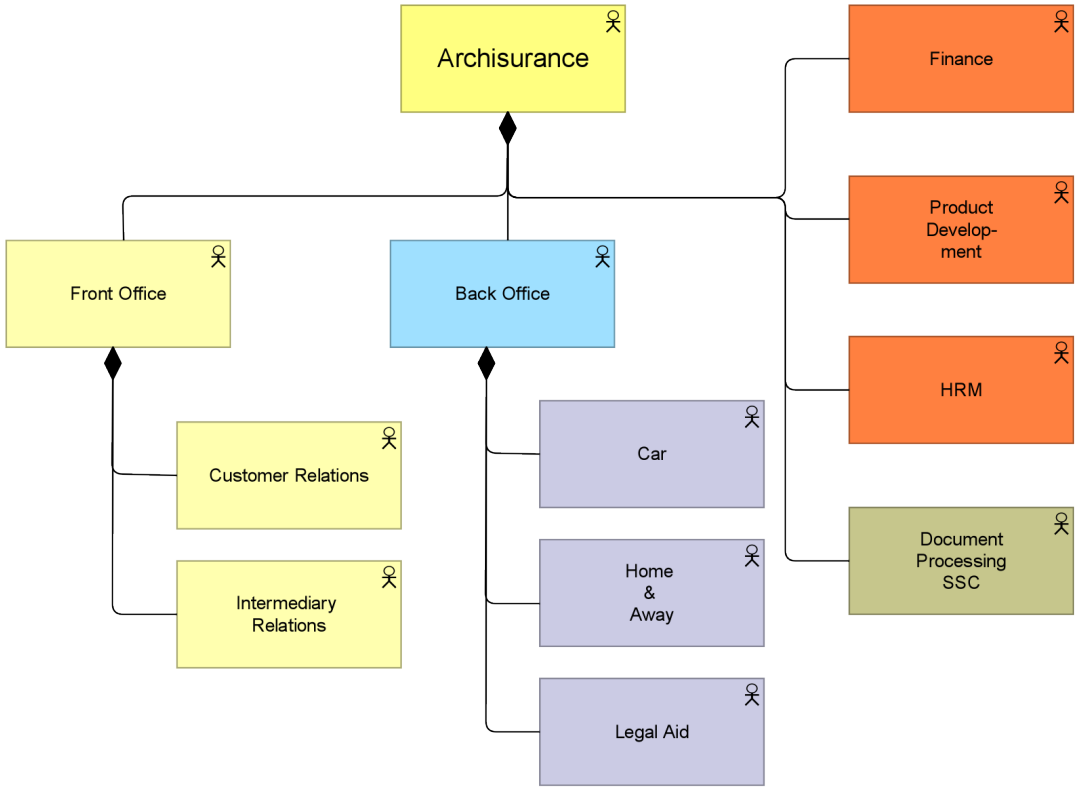
- Conceptual
  - information the business finds relevant
- Logical
  - Structure of information for manipulation by information systems
- Physical
  - The storage of the information

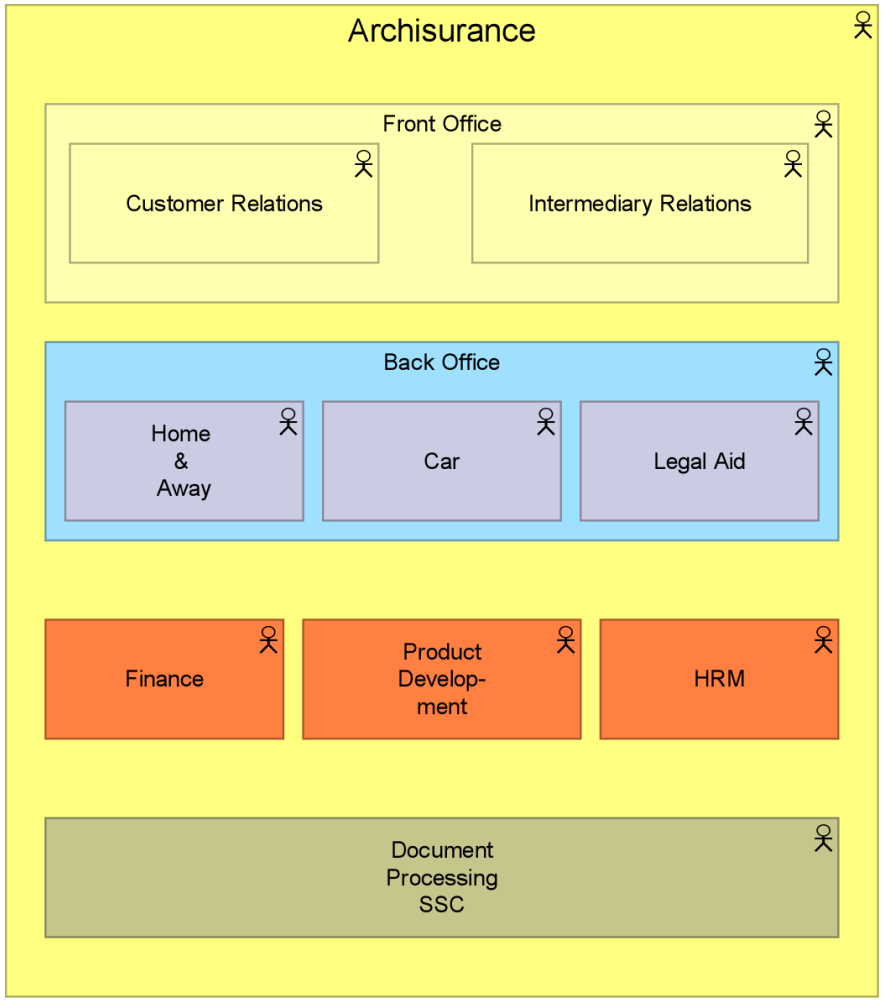
Nesting



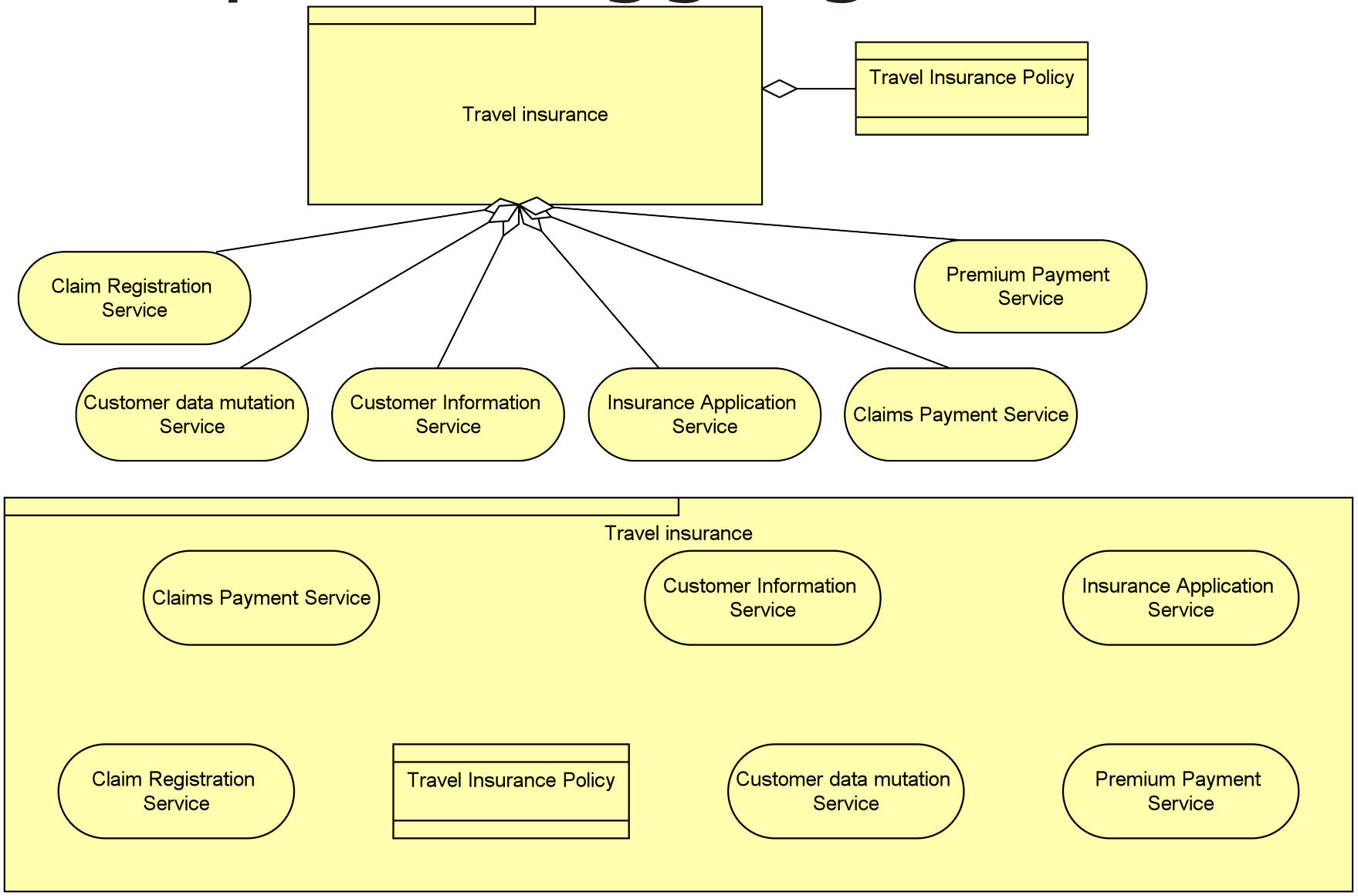
- Nesting elements inside other elements is an alternative graphical notation to express structural relationships

Graphical Composition

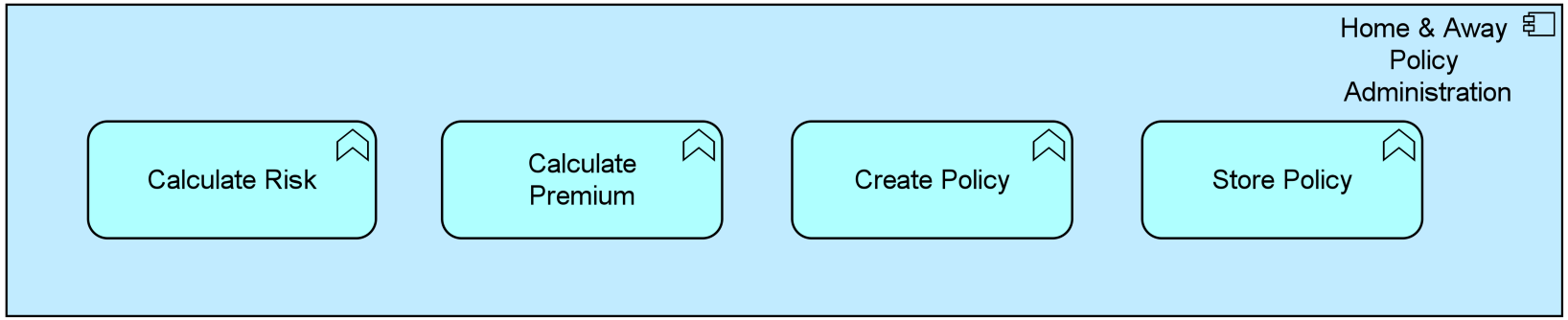


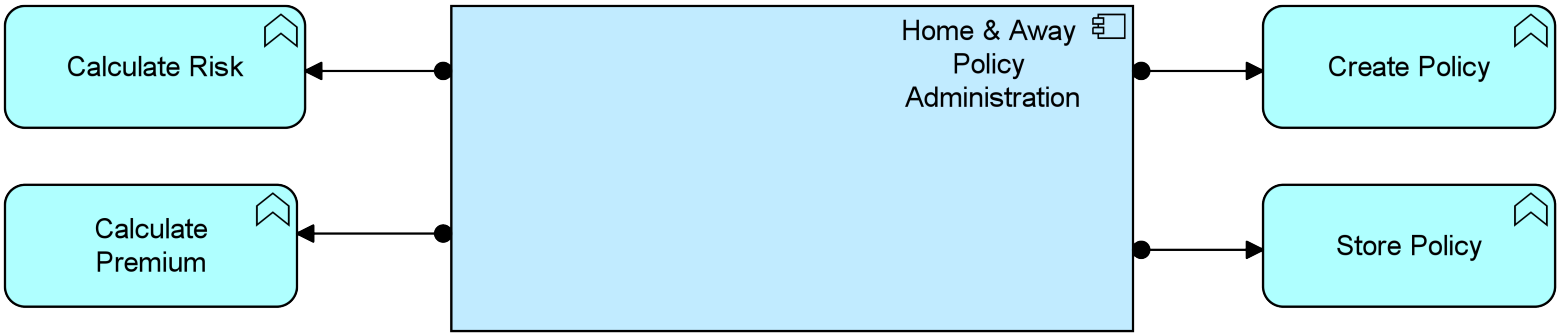


Graphical Aggregation



Graphical Assignment





Note: nesting is now allowed for all structural relationships, and for specialization

Use of relationships

- The relationships as shown in the core framework are the most typically used relationships
- A lot of other relationships are allowed
- See Relationship Tables in Appendix B (p.121)
  - Consists of all relationships from all metamodels + rules for derivation
    - Derivation of relationships is part of the Practitioner training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