

Cabin - Ping DFD

Leon Starr

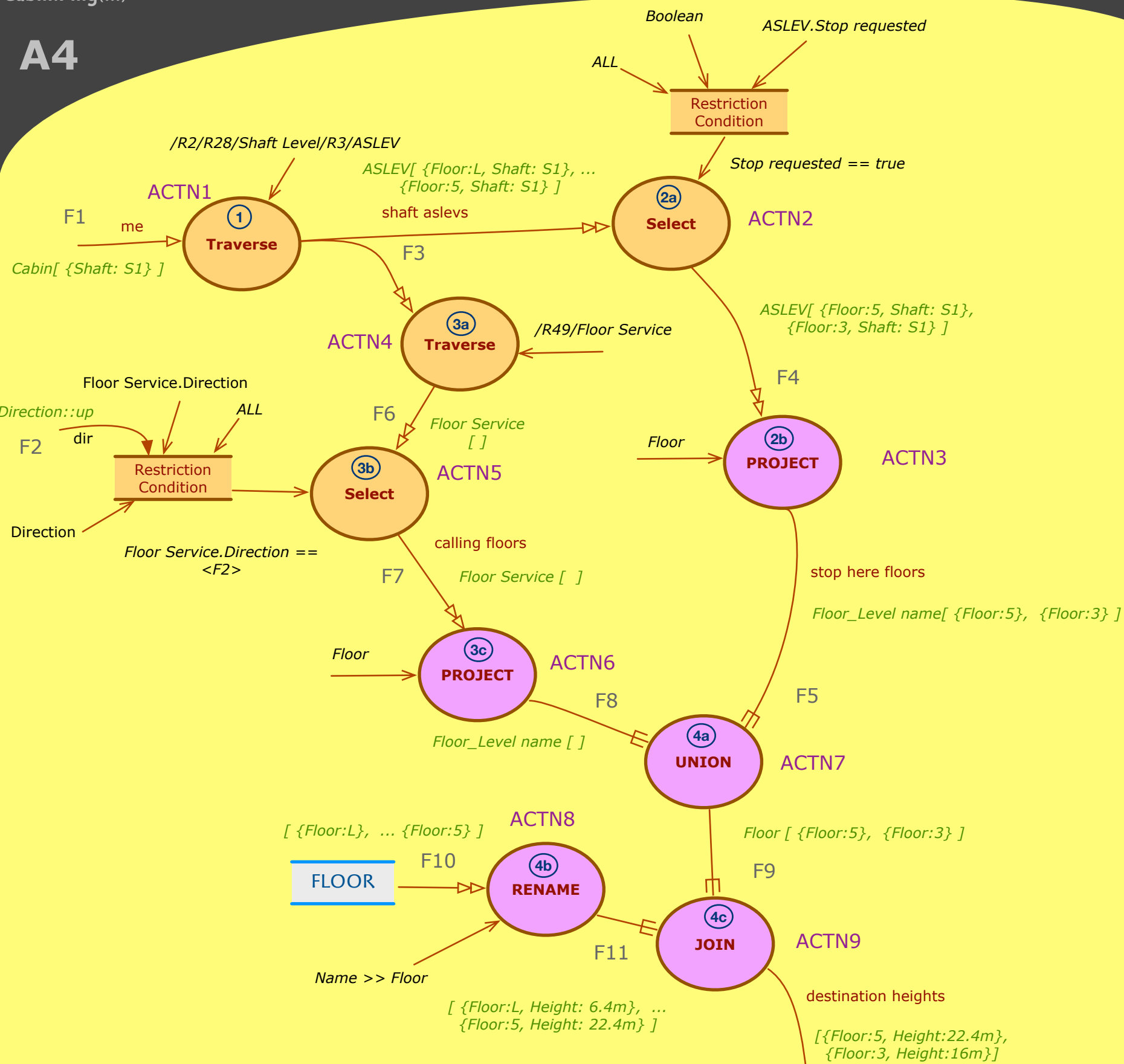
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MODEL INTEGRATION, LLC

A4



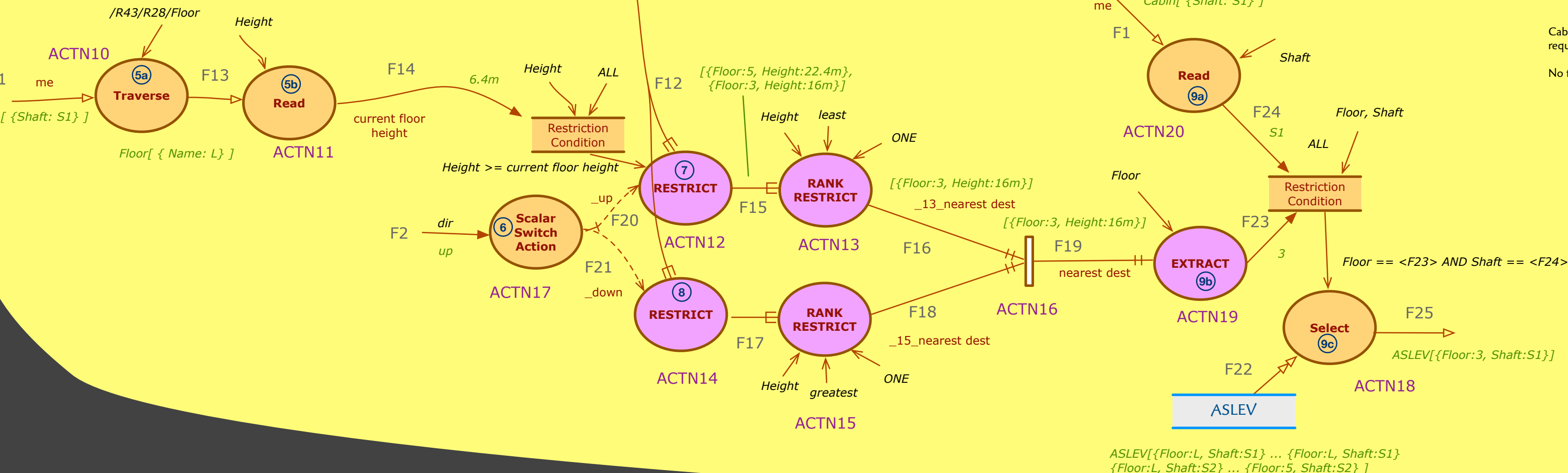
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

```
-- Cabin.Ping( dir: Direction ) : Accessible Shaft Level
--
//
// Search ahead of the Cabin in the indicated direction
// return the nearest ASL with a stop request and/or a Floor Service calling
// in that direction. If none is found, return the empty set.
//
// Everywhere I could stop
shaft aslevs .= /R2/R28/Shaft Level/R3/Accessible Shaft Level
// Pending stop and call requests
stop here floors != shaft aslevs( Stop requested ).Floor
calling floors != shaft aslevs/R49/Floor Service(Direction : ^dir ).Floor

// Take the union of all requests and join with Floor to get a table of heights for each
// destination heights != ((stop here floors + calling floors) ## Floor[Name >> Floor])

// Find all Accessible Shaft Levels ahead of the cabin
current floor height = /R43/R28/Floor.Height
^dir? {
  _up:
    // Get the lowest floor at or above the cabin
    nearest dest ||= destination heights(Height >= current floor height)(1, ^~Height)
  _down:
    // Get the highest floor below the cabin
    nearest dest ||= destination heights(Height < current floor height)(1, ^+Height)
}
// Since you can't have two floors at the same height for the same shaft, we have
// at most one row in our table, nonetheless we set cardinality to 1
// to clarify that we have a single tuple result

// Convert to either zero or one instance of ASLEV class and provide as output
=>> Accessible Shaft Level( Floor: nearest dest.Floor; Shaft )
```



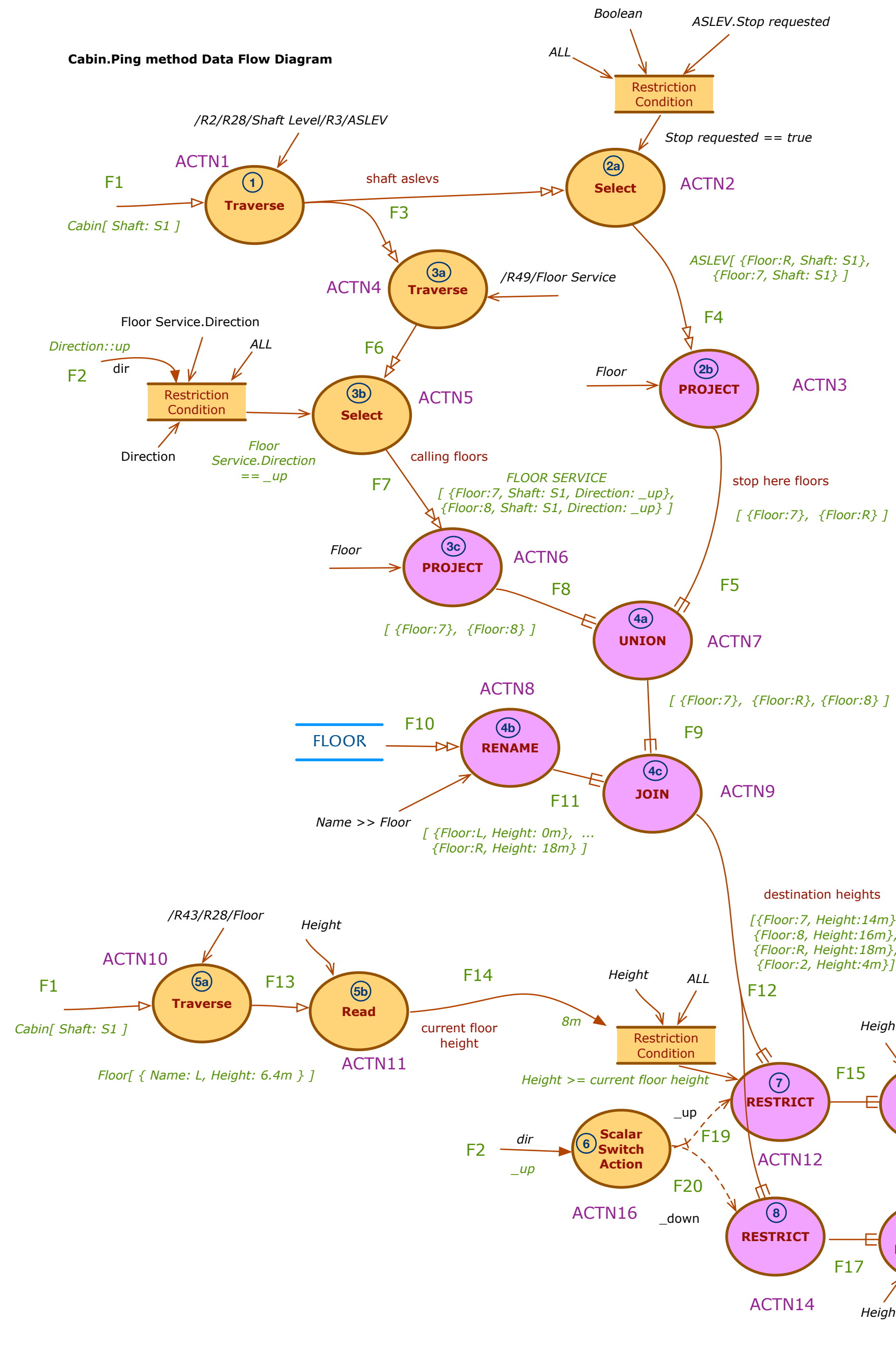
Cabin at Floor L with two stop requests pending at Floors 3 and 5.
No floor up/down calls pending

⊗		5	22.4m
		4	19.2m
⊗	●	3	16.0m
		2	12.8m
		1	9.6m
	↑	L	6.4m

S1

ASLEV[{Floor:L, Shaft:S1} ... {Floor:L, Shaft:S1}
{Floor:L, Shaft:S2} ... {Floor:5, Shaft:S2}]

Cabin.Ping method Data Flow Diagram



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