

Visualization of Supply Chain Events for Anti-counterfeiting



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Agenda

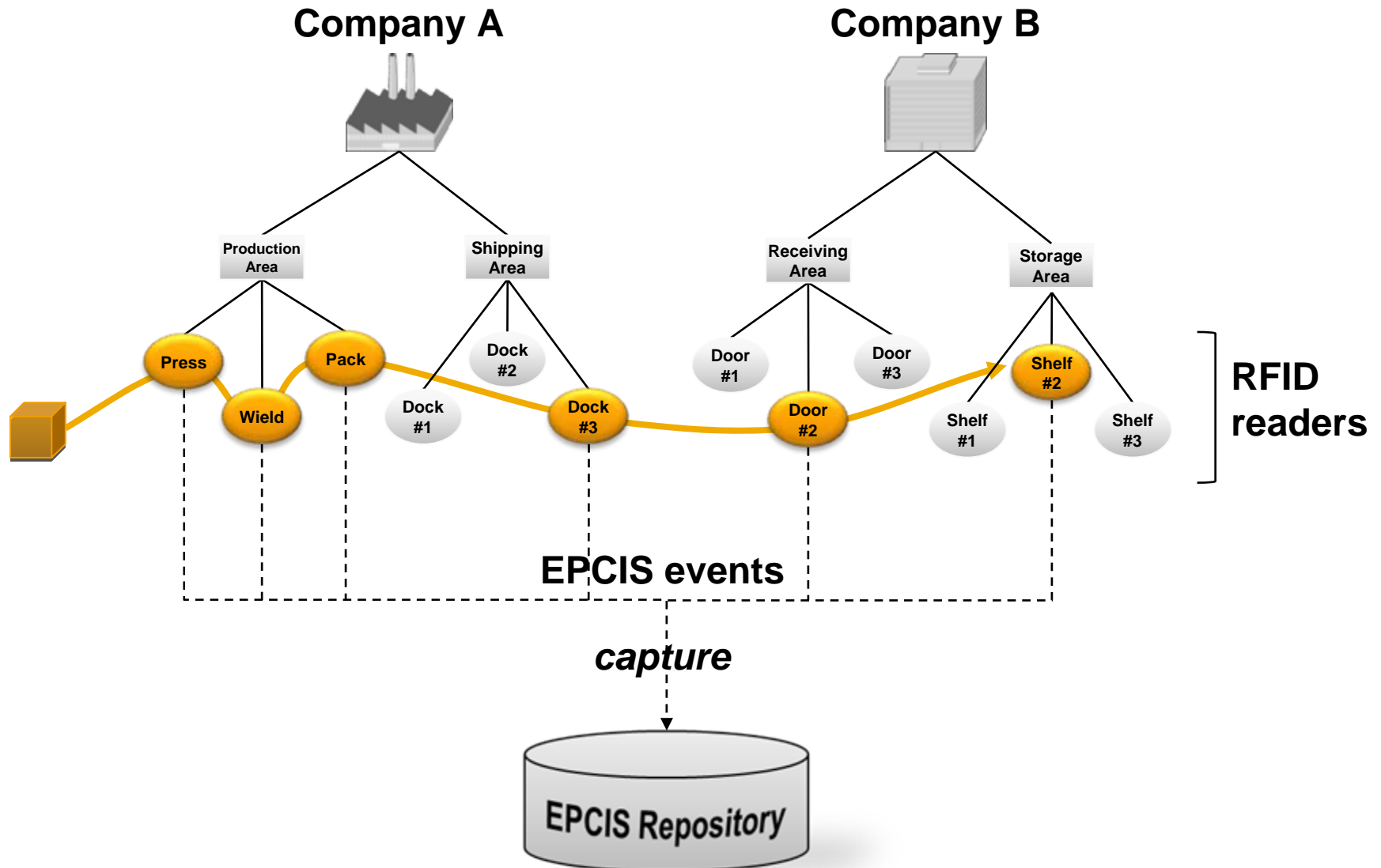


1. **Basics**
2. Simulation
3. Visualization

“[T]he manufacture of articles which are 'intended to appear [...] so similar to the original as to be passed off as genuine items’”

source: T. Staake, M. Lehtonen. SToP Deliverable 1.1. July 2008

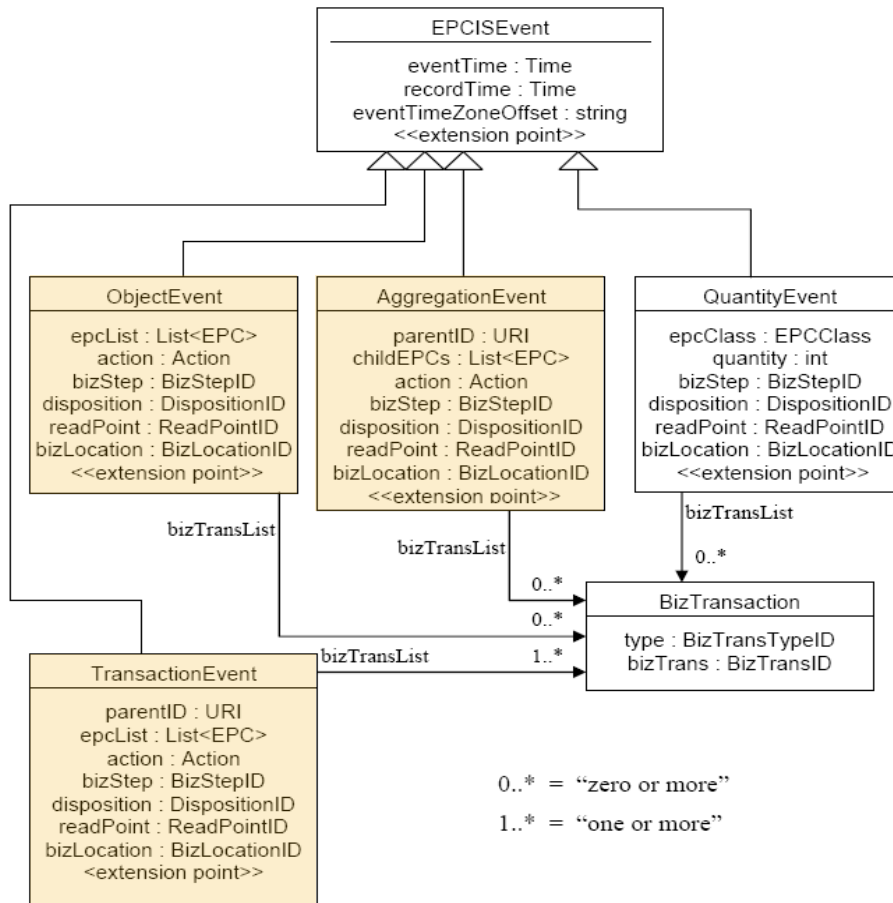
- causes economic damage
- threatens consumer health
- a growing problem



urn:epc:id:sgtin:0614141.100734.1234567



- identifies single trading items
- standardized by EPCglobal
- various number schemes, here: SGTIN-96 URI
- attached via RFID tag



■ Object events

- creation
- observation
- destruction

■ Aggregation events

- packaging
- unpackaging

■ Transaction events

- track business transactions

■ Quantity events (neglected)

- stock-keeping

Agenda



1. Basics
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urn:epc:id:sgtin:0614141.100734.1234567

header company prefix item reference serial number

a. omitting

no EPC on counterfeit

b. imitating

formally incorrect EPC

c. faking

EPC with made-up company prefix
or item reference

➔ negligible

d. transferring

transfer EPC from authentic intact item
to counterfeit

e. reusing

reuse EPC of destroyed authentic item

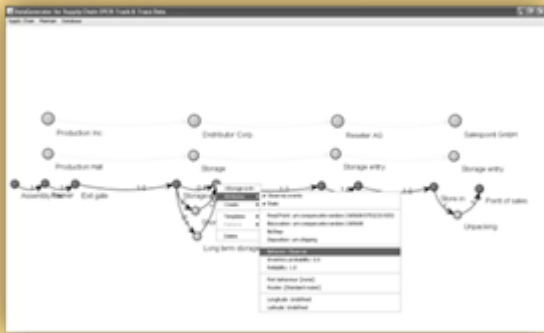
f. randomizing

randomize serial number part of EPC

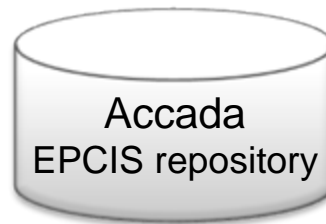
g. duplicating

duplicate authentic EPC

Simulation



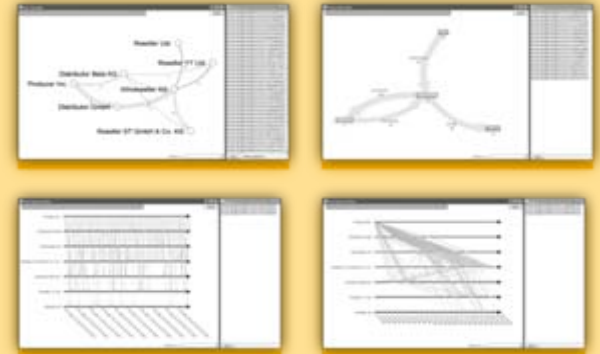
EPCIS events



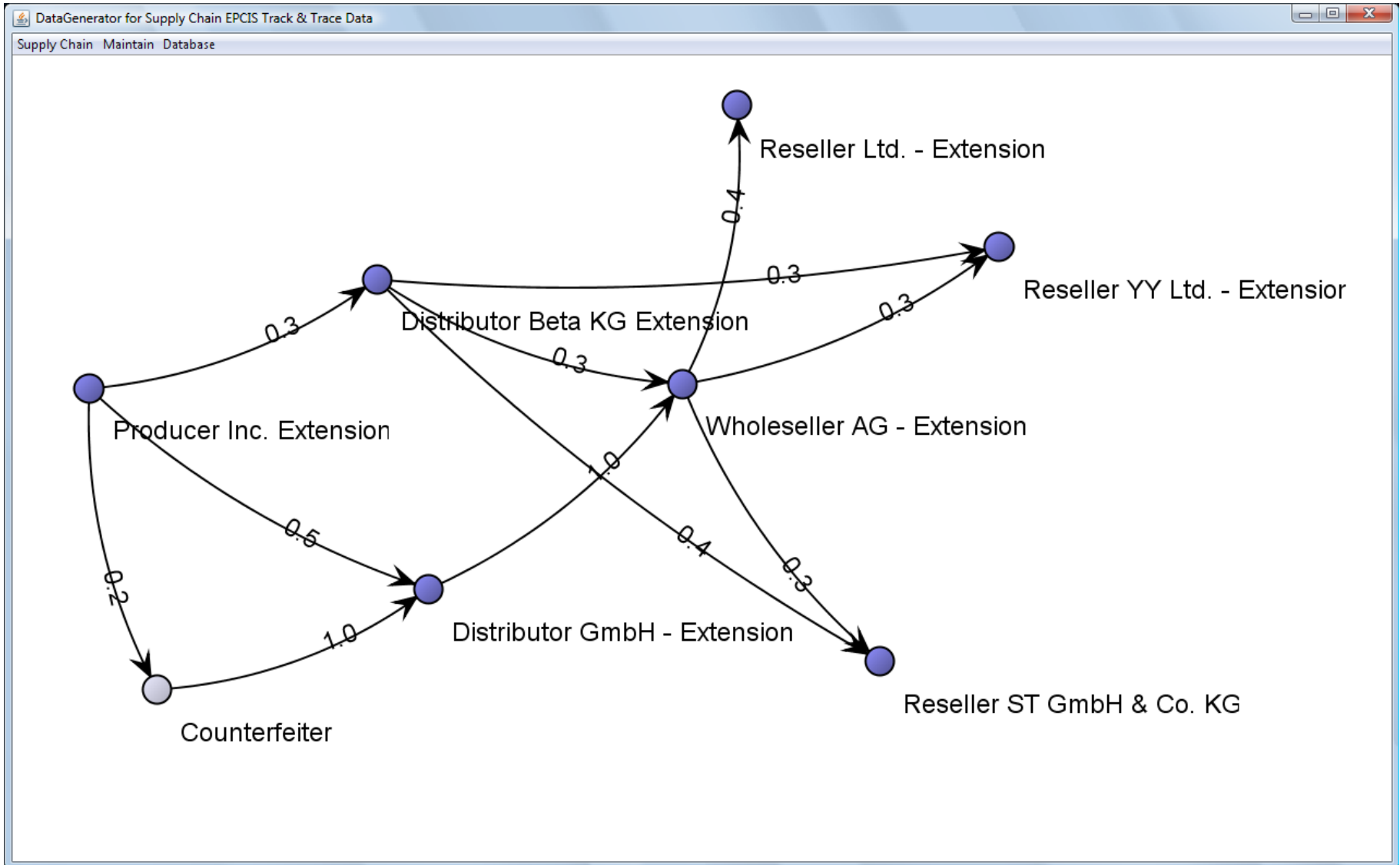
EPCIS events



Visualization



Supply Chain Editor

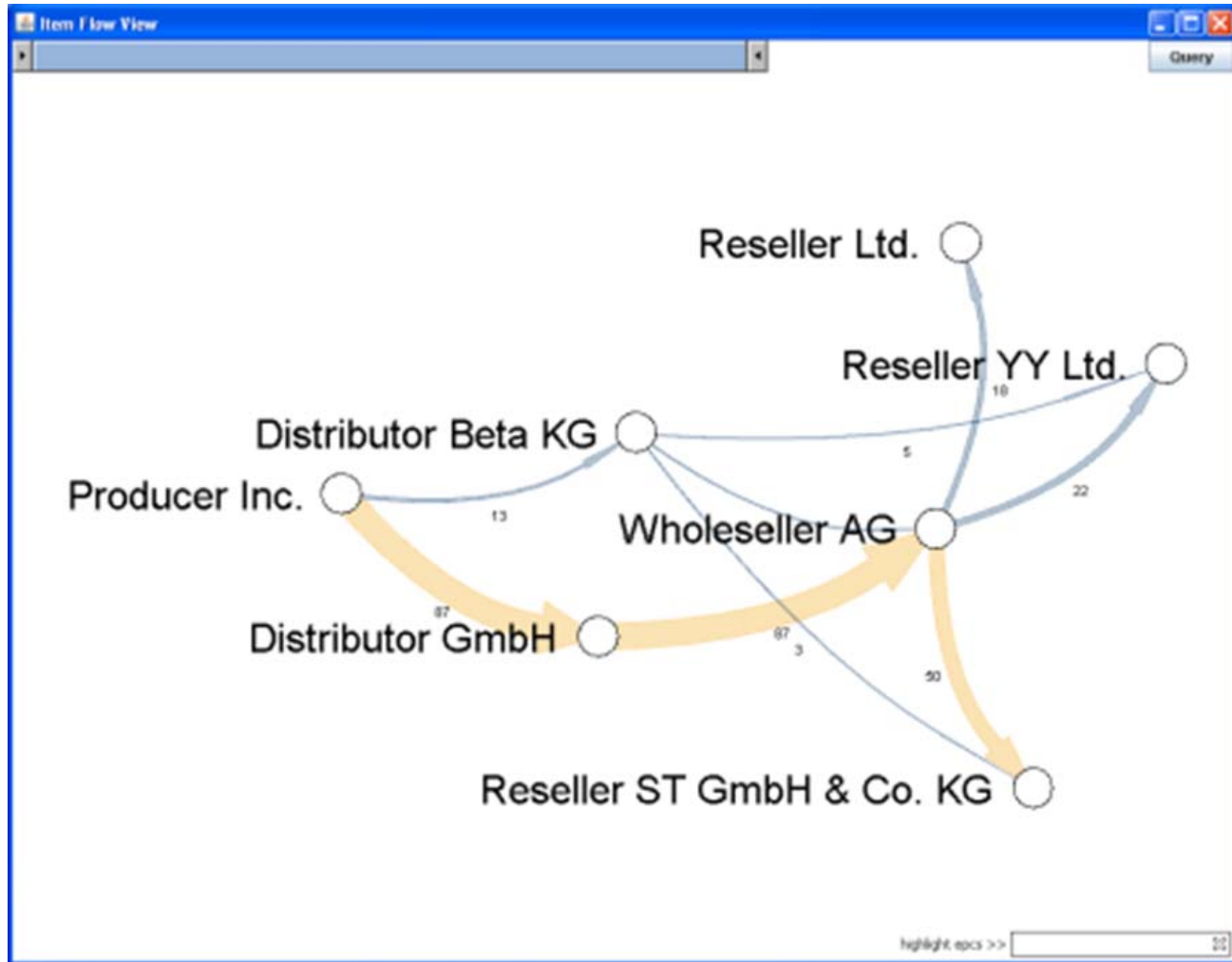


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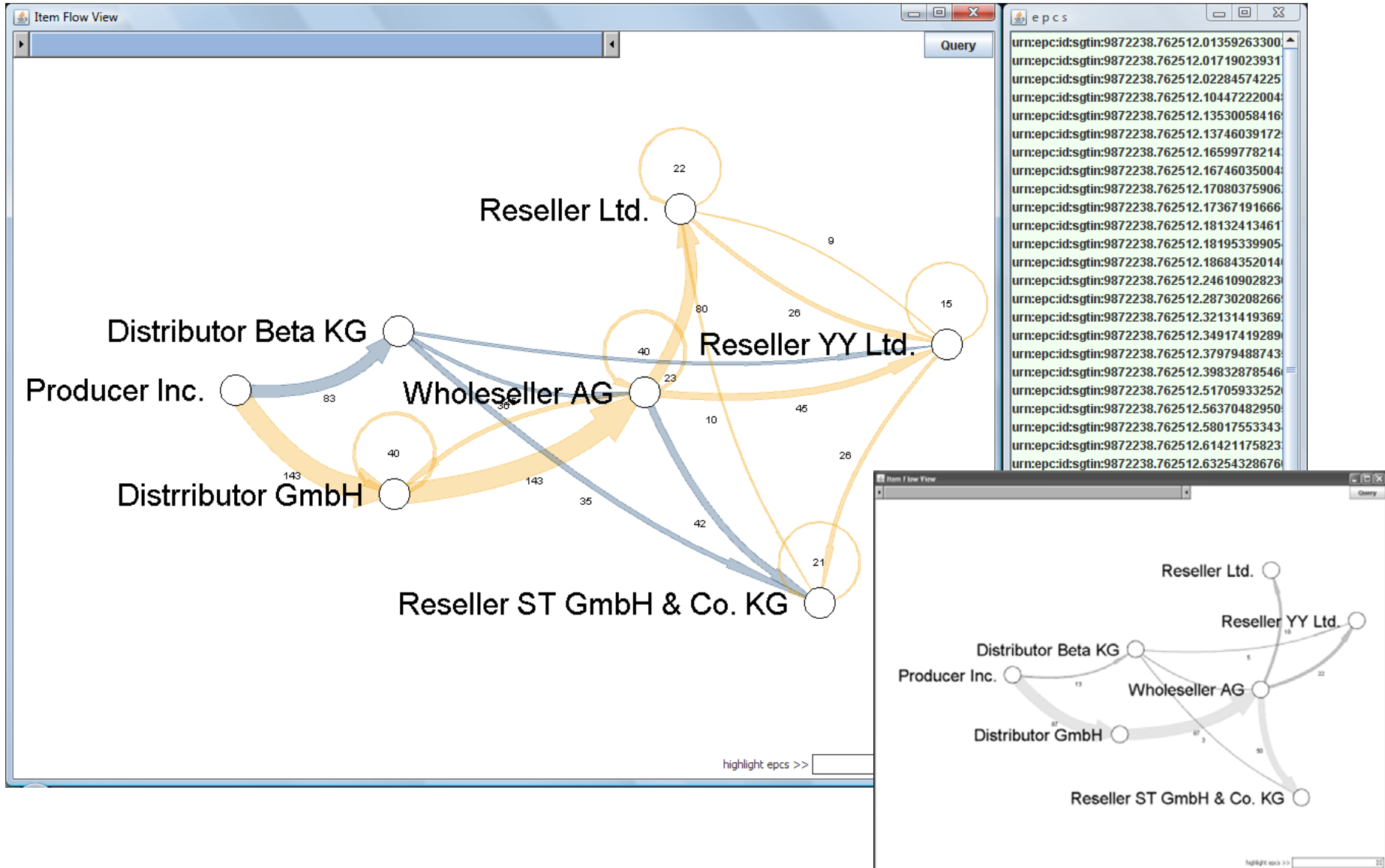


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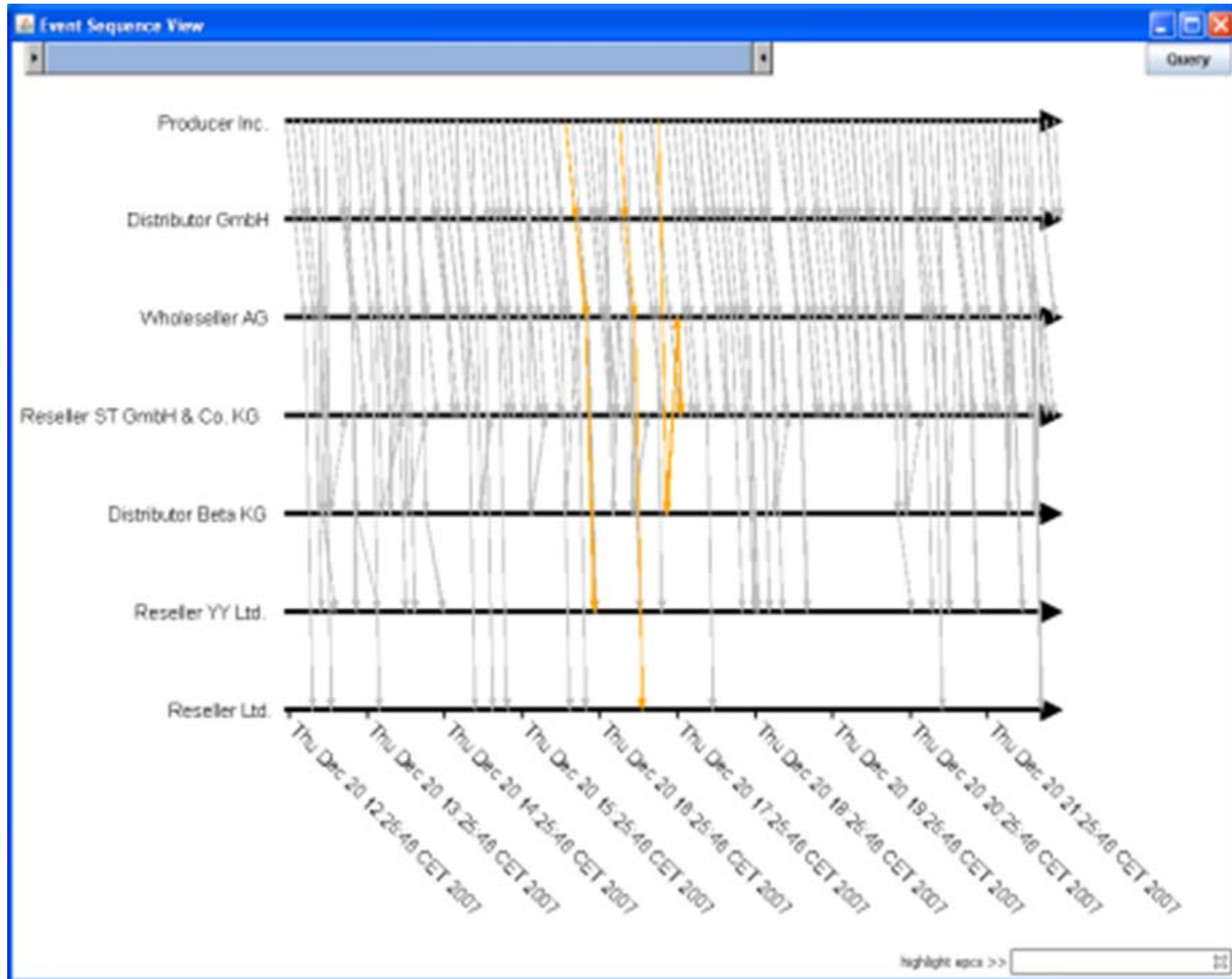
Item Flow View



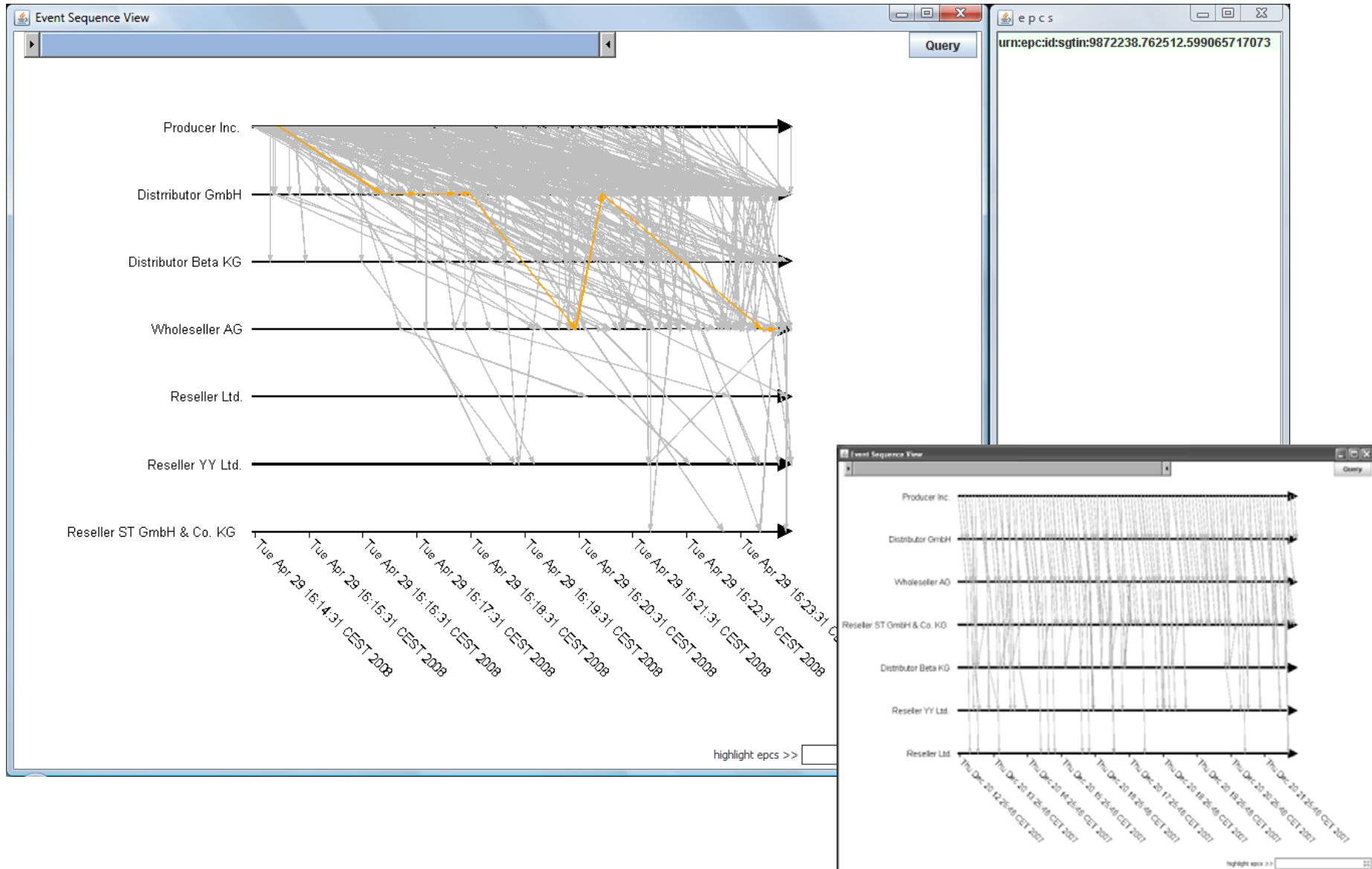
Item Flow View - Duplicating scenario



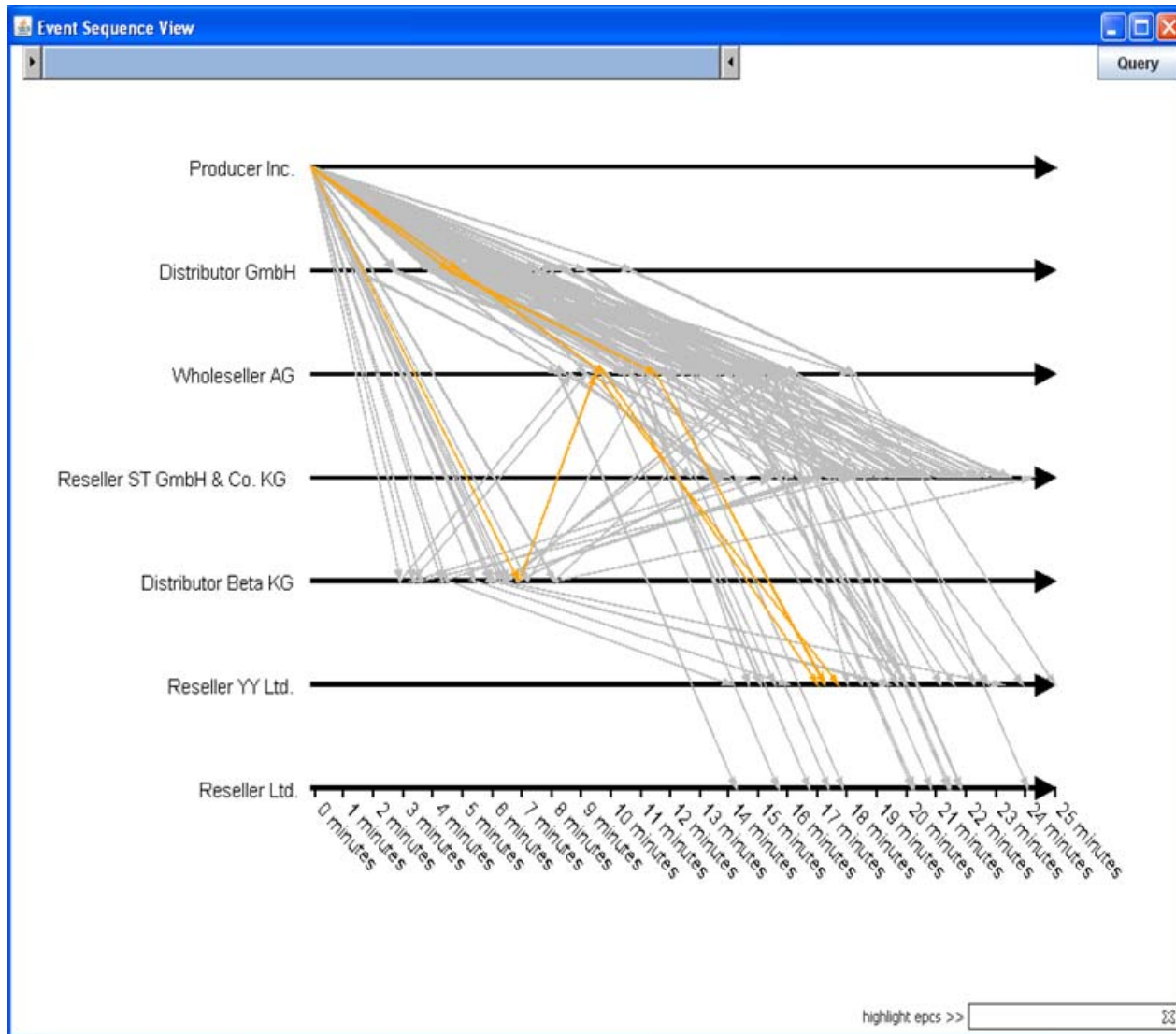
Event Sequence View in absolute mode



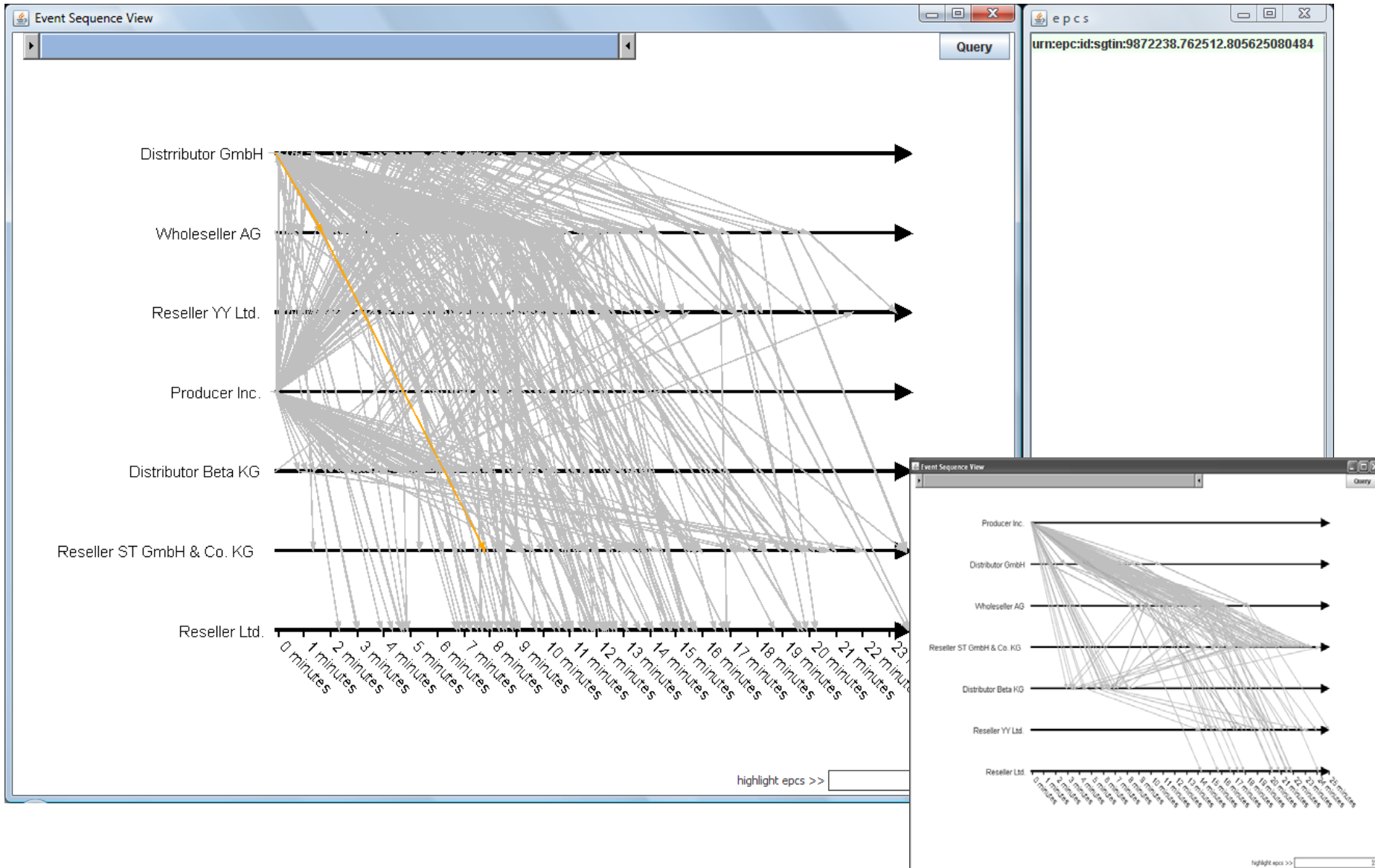
Event Sequence View absolute Duplicating scenario



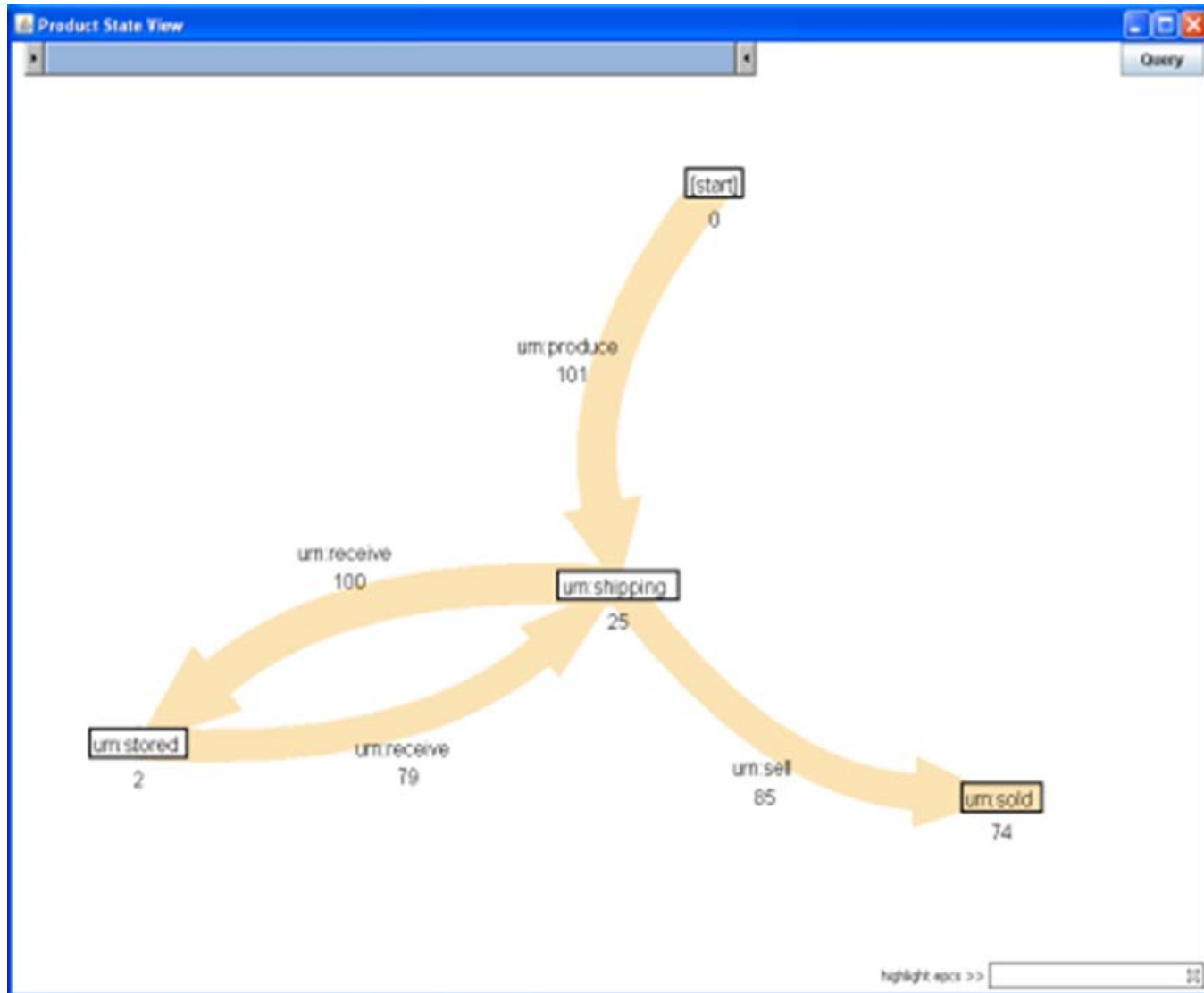
Event Sequence View in normalized mode



Event Sequence View normalized Randomizing scenario

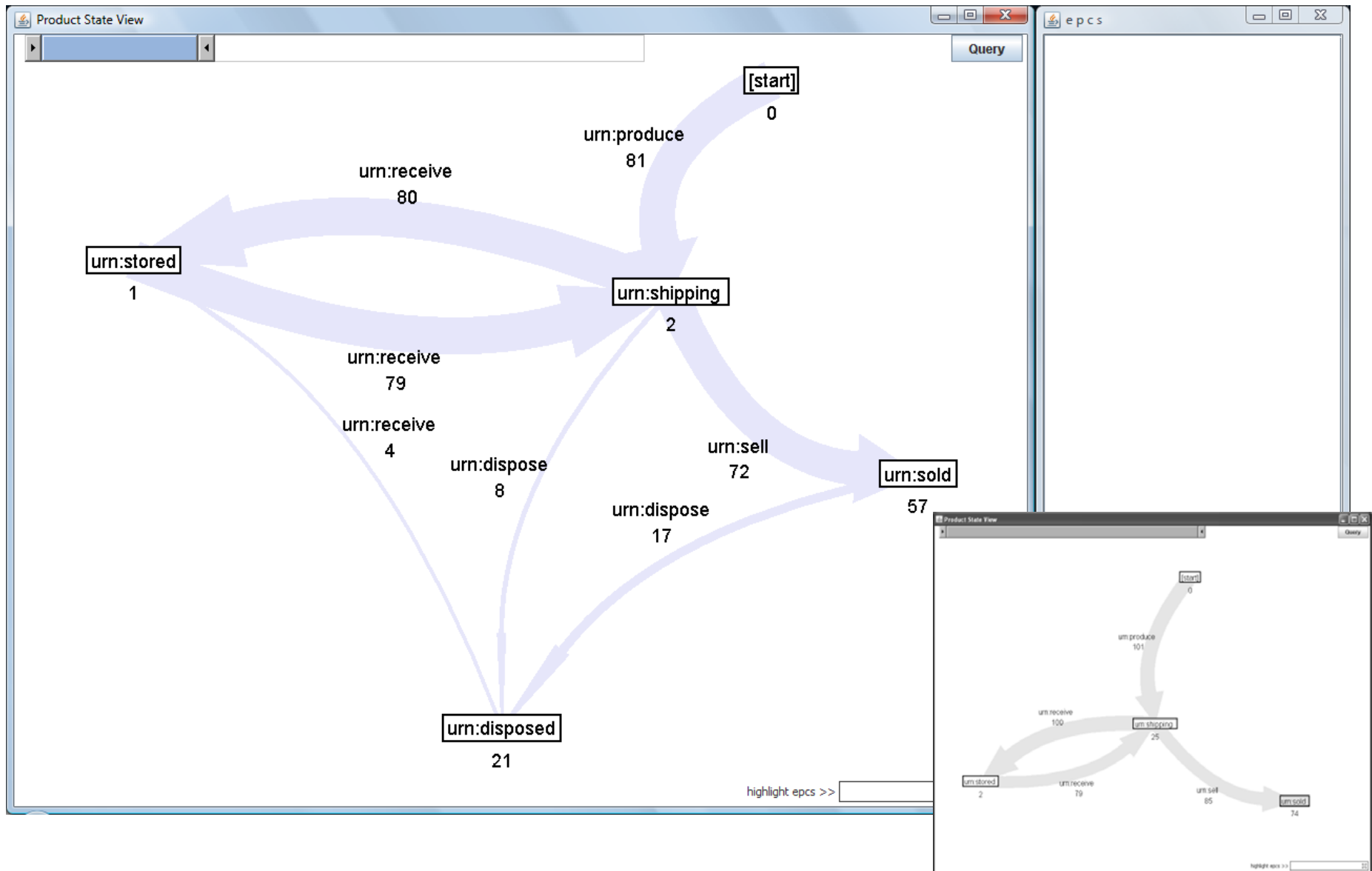


Product State View



Item Flow View

Reusing scenario



	A Transfer	B Reuse	C Randomize	D Duplicate
Item Flow View	-	✓	✓	✓
Event Sequence View absolute	(✓)	(✓)	(✓)	(✓)
Event Sequence View normalized	(✓)	(✓)	✓	(✓)
Product State View	-	✓	✓	✓

Thank you!