

Calculating Average Cycle Stock



Question:

Based on the definition, average cycle stock is about half-a-period's demand less the target cycle stock. In the chart to the right, on Nov 14 2011, the average cycle stock should be Target Cycle Stock – Demand / 2 or $16,688 - (16,688 / 2) = 8,344$. The result shows the average cycle stock is 3,576. Please explain?

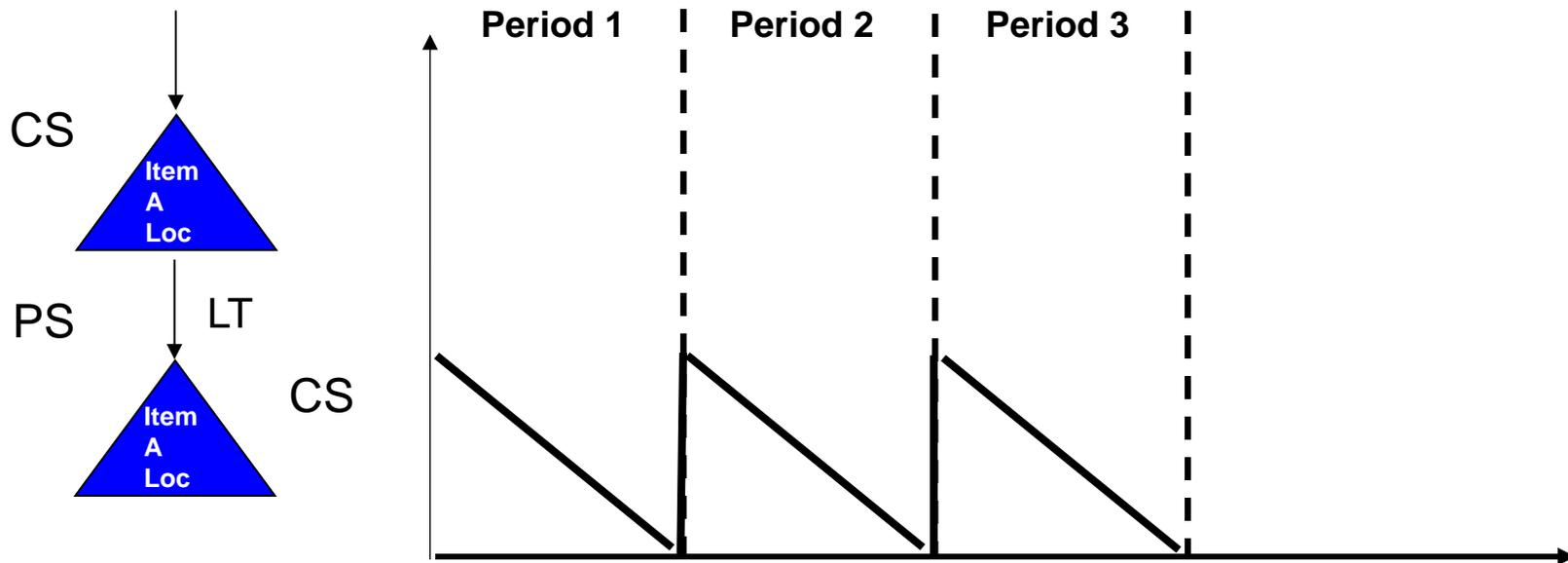
	Nov 14, 2011
Forecast Demand Mean	16,688
Forecast Demand Std Dev	4,786
Safety Stock	-
Cycle Stock	3,576
Prebuild Stock	-
Merchandising Stock	-
Expected On Hand Stock	3,576
Physical Pipeline Stock	-
Total Pipeline Stock	-
Average Inventory Position	3,576
On Hand Stock (Periods)	1
Planned Receipts	16,688
Production Quantity	-
Reorder Point	2,336

Answer:

- The logic is different because the lead time is less than 1 (see the next two slides)
- When the lead time is less than one, the average cycle stock is calculated as follows
 - $\text{Average Cycle Stock} = \text{Target Cycle Stock} - \text{Demand}(2 - \text{Lead Time}) / 2$
- Lead Time in these examples is outgoing lead time

Shared ownership

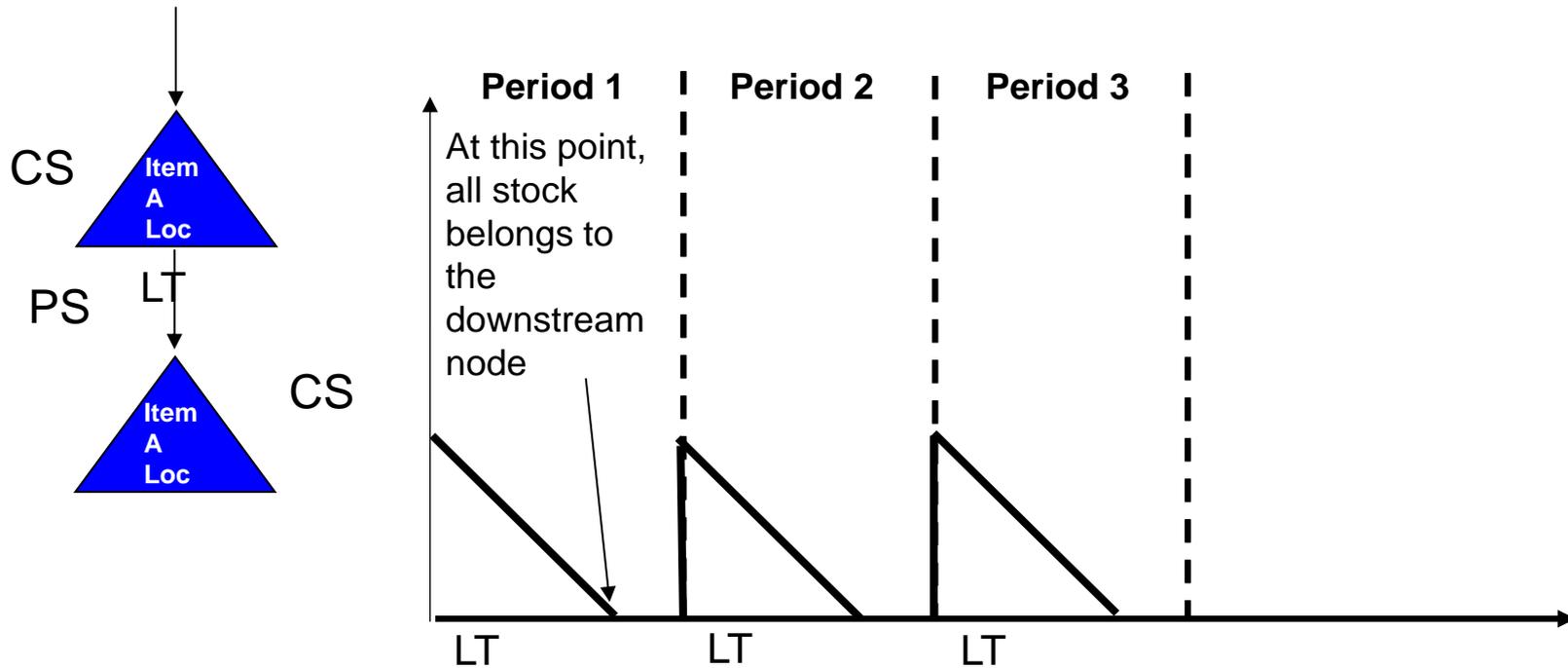
Under continuous depletion logic, we assume “shared ownership” between two stages of the supply chain when calculating average inventory. This way we don’t overestimate total inventory in the system when viewing aggregate average inventory across the supply chain.



$$\text{Average Cycle Stock} = \text{Target Cycle Stock} - \text{Demand} / 2$$

Leadtime is less than 1 period

When outbound $LT < 1$, average cycle stock is reduced to reflect the fact that the lead time is less than a period and the downstream node is expecting a shipment in mid-period



$$\text{Average Cycle Stock} = \text{Target Cycle Stock} - \text{Demand} (2 - \text{Lead Time}) / 2$$



Thank you

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