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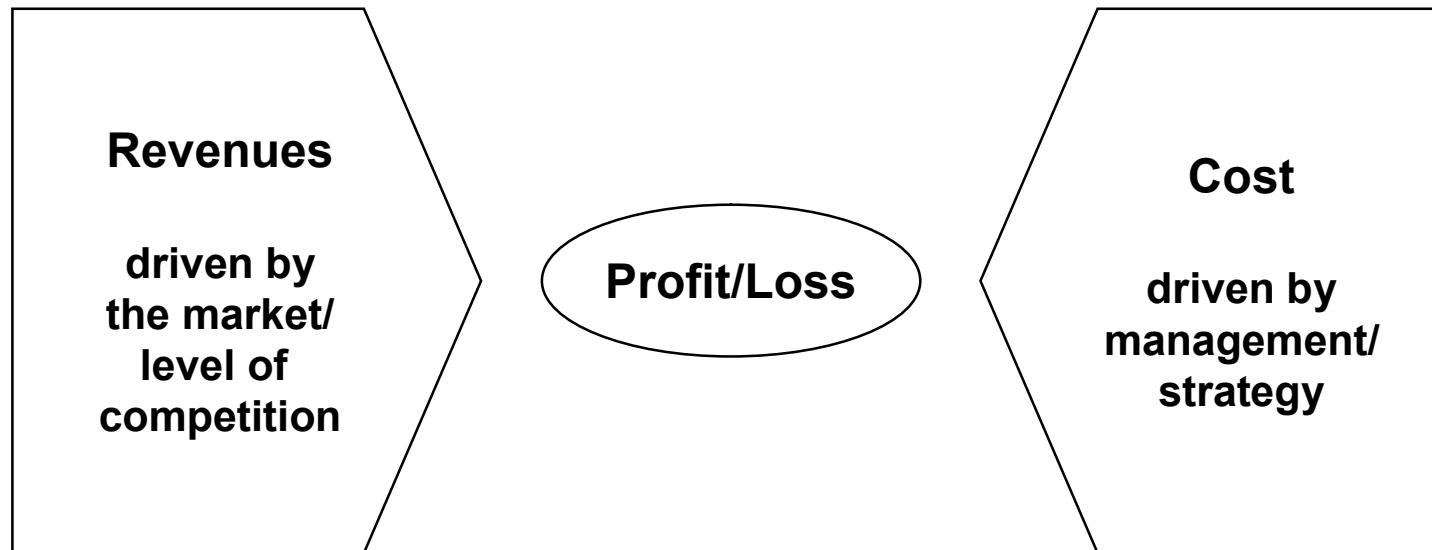
## **Network productivity improvements**

Christoph Klingenberg, Lufthansa German Airlines

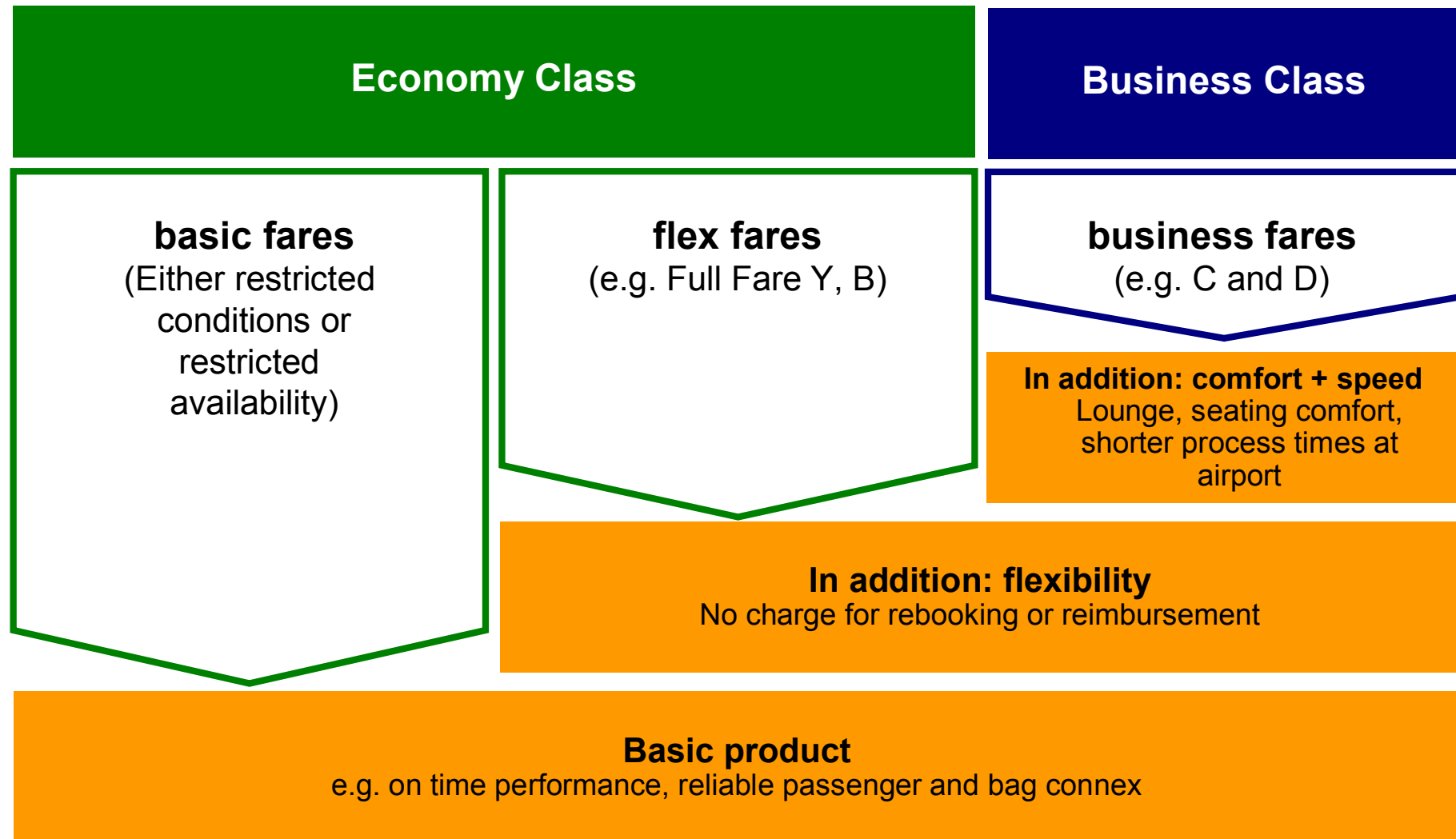
MIT Conference “Winds of Change – The Airline Industry in 2004”

Washington D.C., April 15, 2004

## Conventional wisdom tells us that airline business is a unit cost game

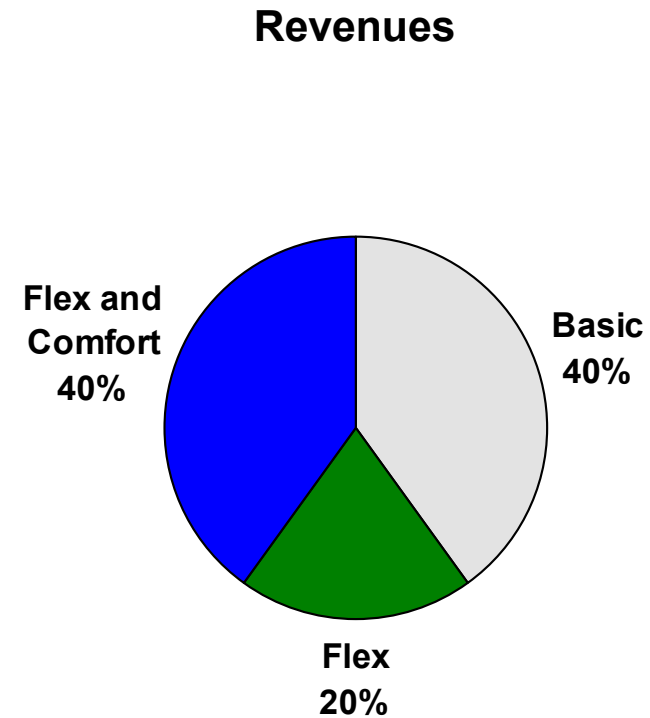
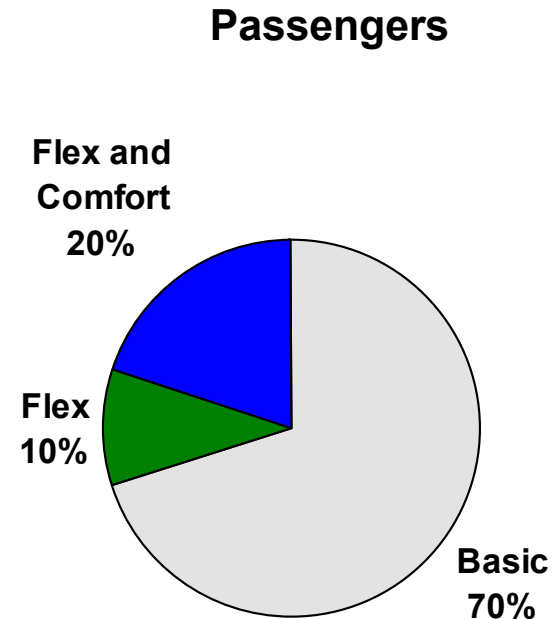


**While this certainly holds true, we suggest to look at a transparent set of price/service options\***

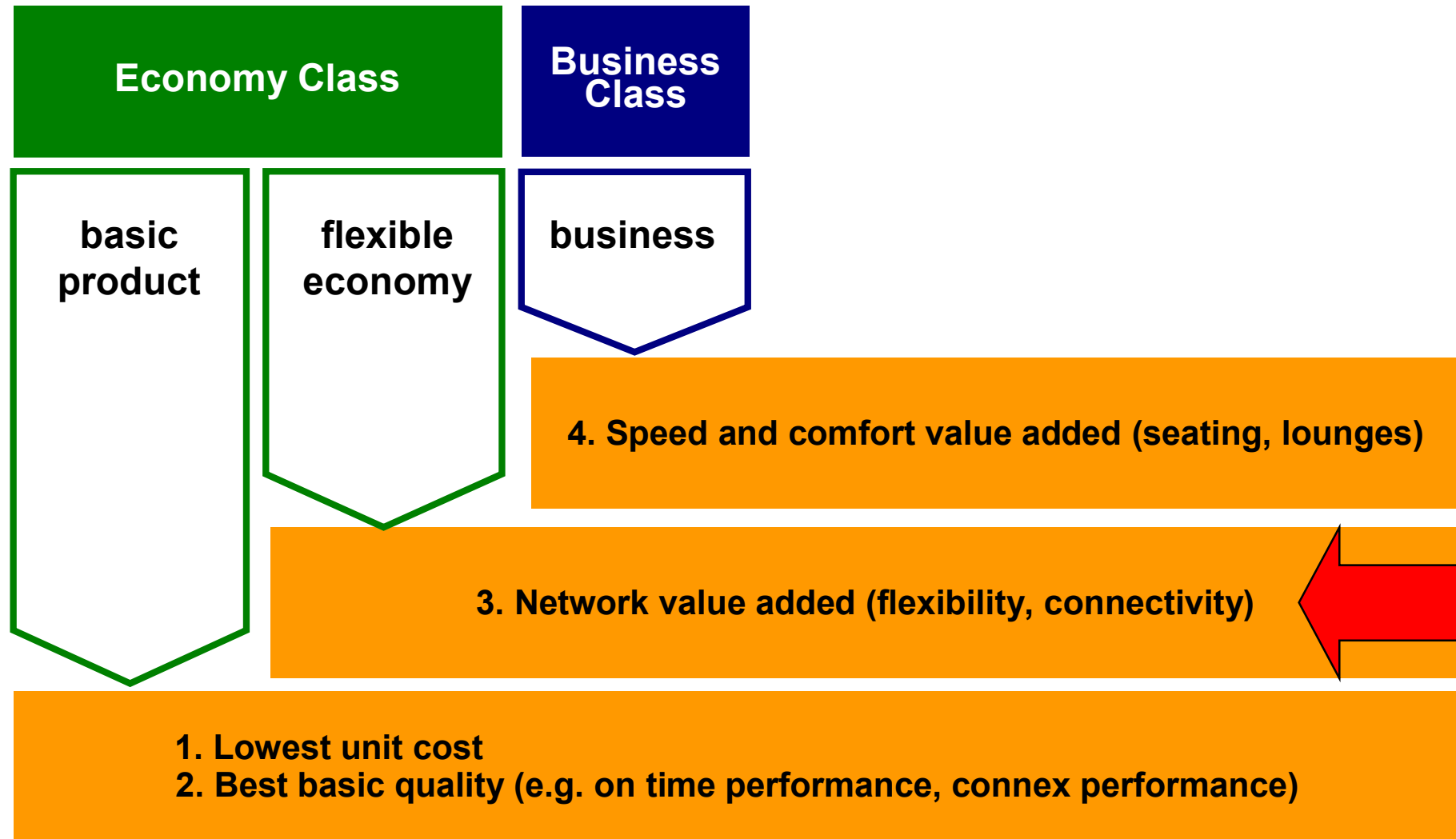


# More than half of our revenues come from flexible tickets


## Passengers and revenues by segments



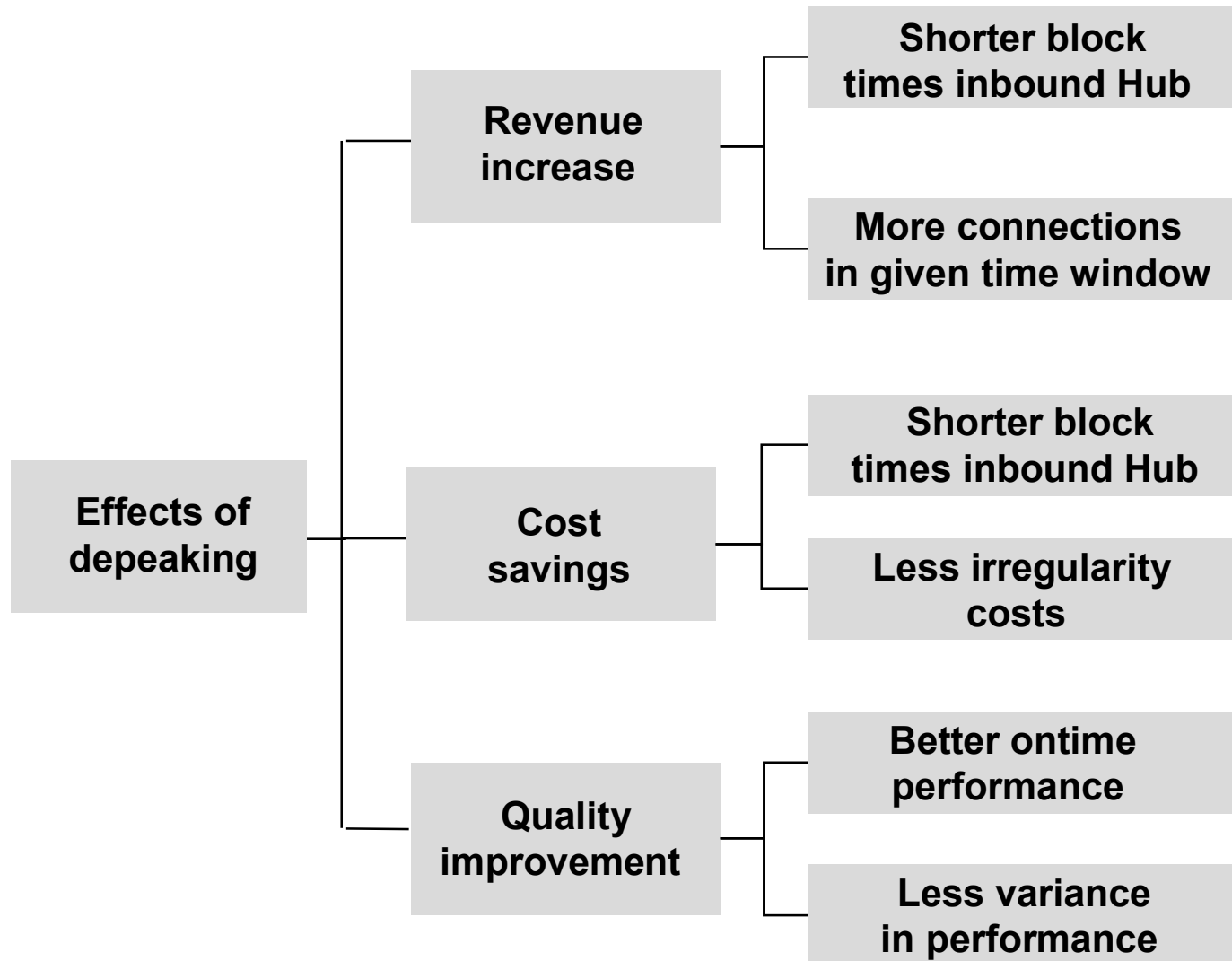
## For the flexible segments we have to play the value added game



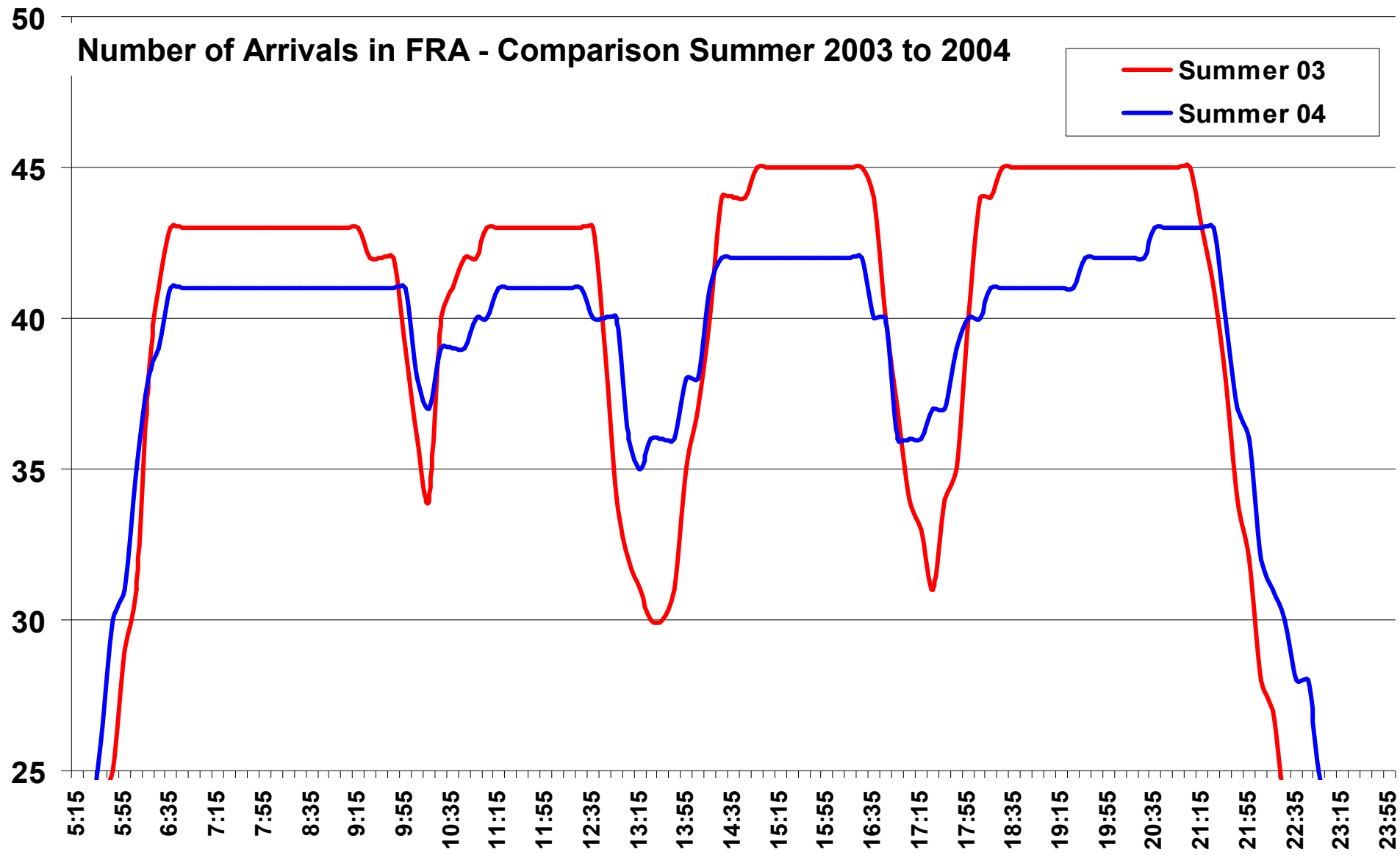
## **Network value added means simultaneous revenue and cost optimization**

- 
- **Hub connectivity (-> revenues)**
  - **On time performance and connex reliability (-> revenues and cost)**
  - **Aircraft utilization (-> cost)**
    - ✈ **Shorter minimum ground times through process optimization**
    - ✈ **Shorter block times into hub through depeaking**
    - ✈ **Shorter night stops through maintenance optimization**
- **Block hours per day and aircraft increased by 10%**
  - **Holding times into hub reduced by 5 to 10 minutes**

## The effects of “optimal depeaking” are significant



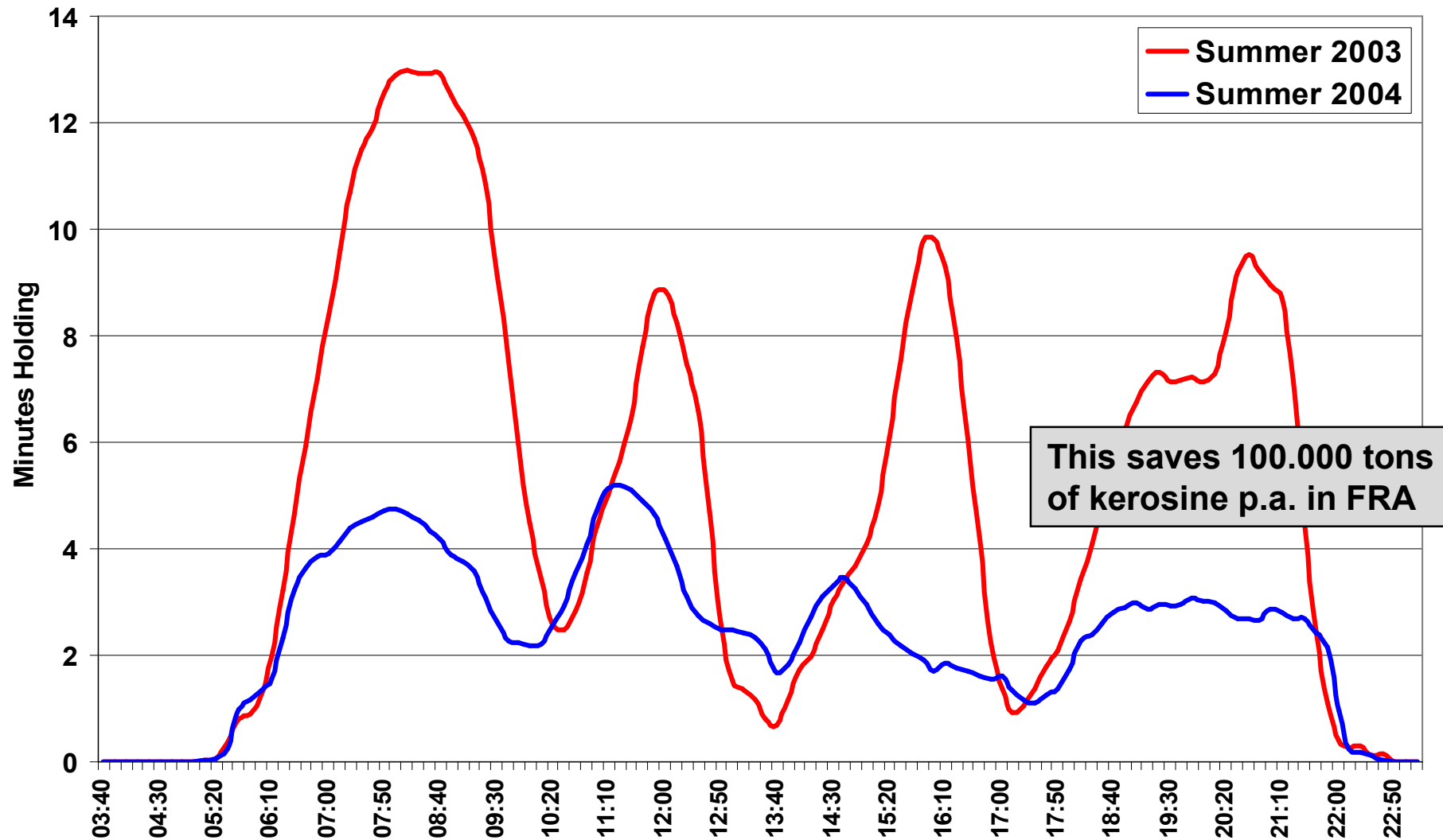
## Depeaking in FRA: lower peaks - but more movements





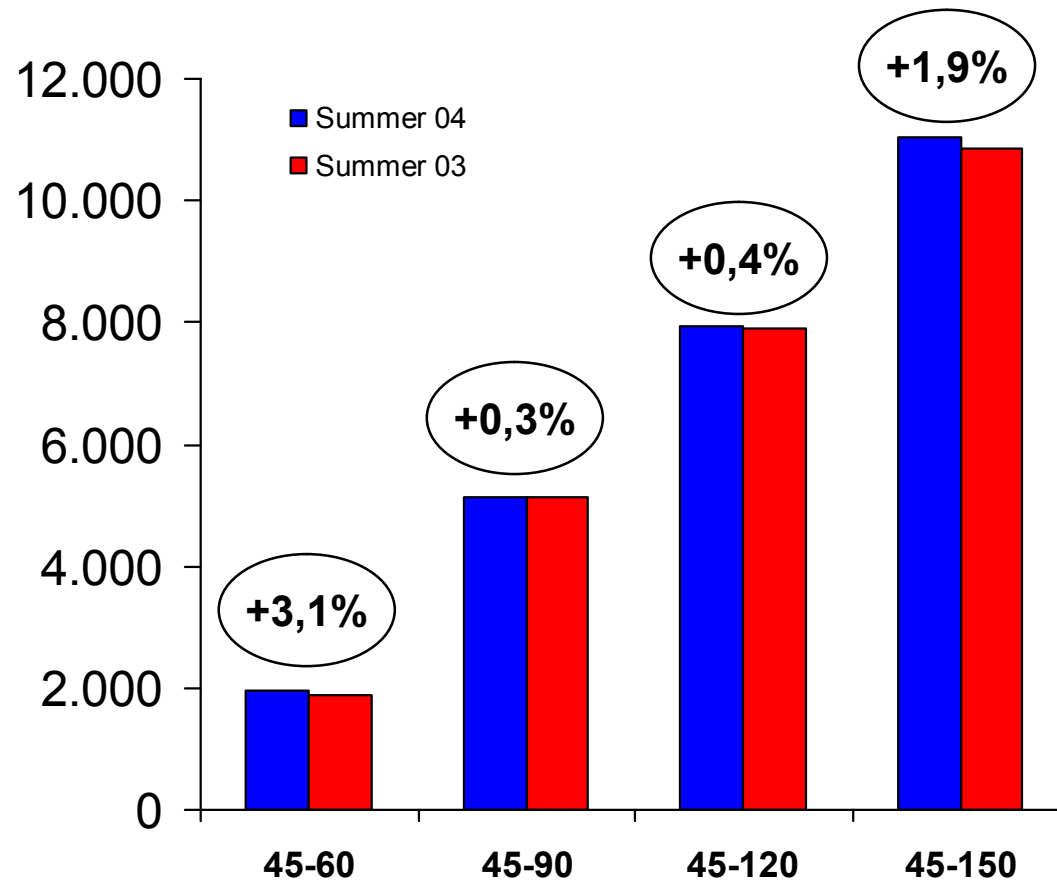
## This reduces holding patterns

### Minutes Holding at FRA - Comparison Summer 2003 to Summer 2004



## Block hours can be reduced and the number connections increased

Number of connections\*

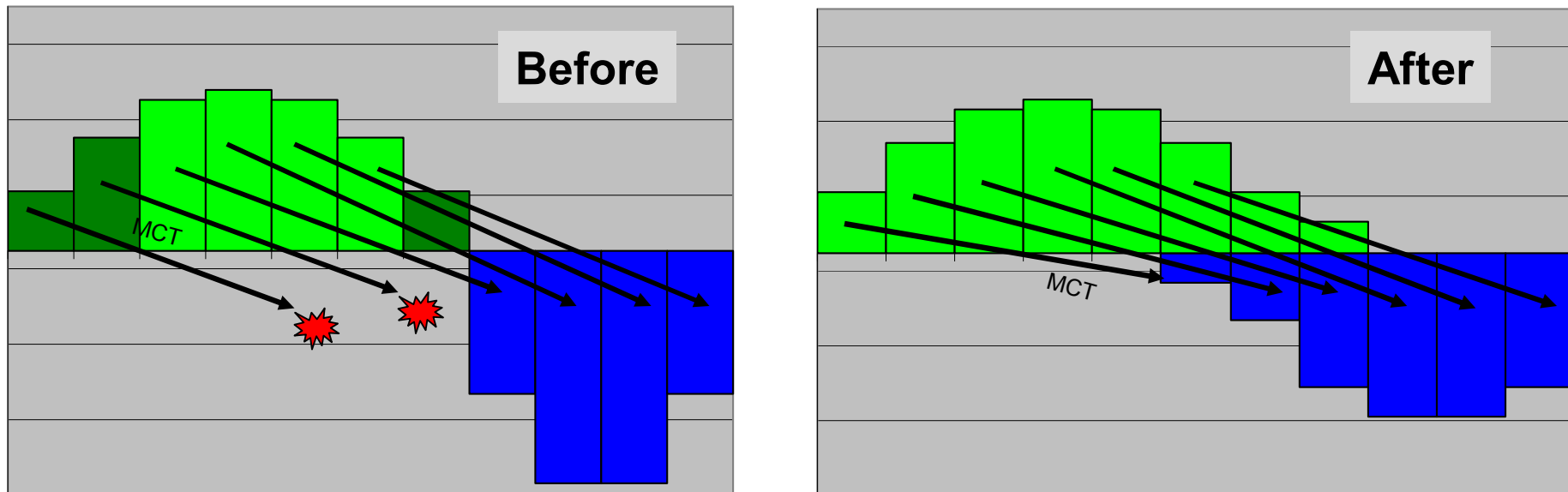


- Slight increase in every time window
- The mechanism for this (surprising?) effect is shown on the next slide

\* Only those connections counted that sell

The improved connectivity can be explained by the flattening of the banks

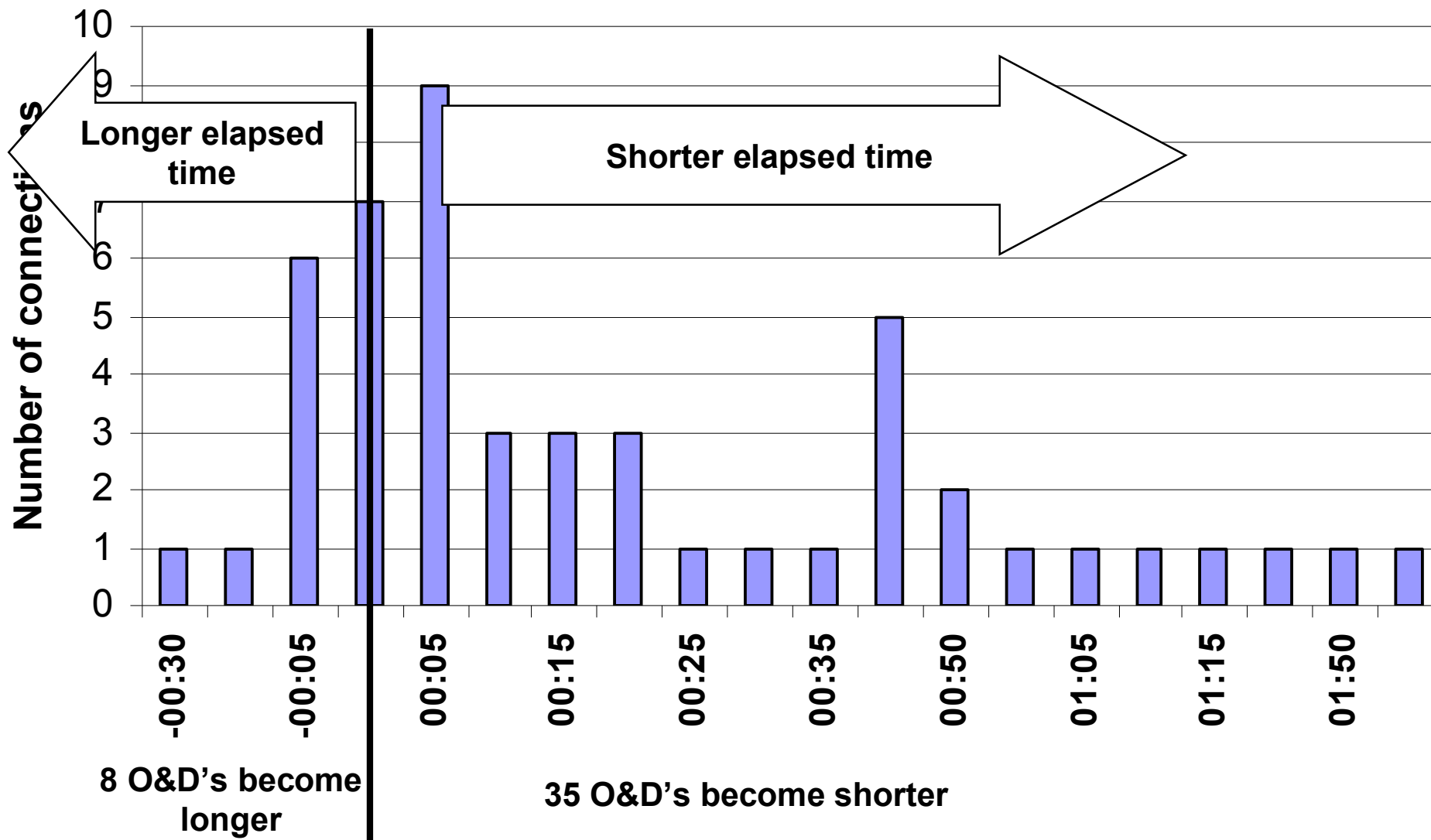
Bank structure and connections in Min Connecting Time - Graph not to scale



Few connections get worse  
Many connections improve

## More than 70% of the Top 50 O&D's have shorter elapsed time

Change Elapsed Time Su 04 versus Su 03; Top 50 LH-Transfer O&D's (by Revenue)



## Cost savings through depeaking are substantial

- Since arrivals in FRA are depeaked by 5% and departures by 10%, we get a corresponding reduction in cost for the following functions
  - ✈ Passenger services (Check-in, Boarding)
  - ✈ Aircraft services (Loading, Catering, Cleaning, Fuelling etc.)
- The peak staffing and equipment can be reduced by up to 10%
- Gate utilization is improved
- Irregularity costs are reduced
- Costs for flying holding patterns are reduced significantly

## **In addition to playing the unit cost game, traditional carriers should focus on segment profitability**

- **For the basic product, low unit costs and high quality is key**
- **For customers seeking flexibility, some network value added is needed**
- **For customers seeking flexibility and comfort, even more value has to be added**
- **“Optimal depeaking” serves all three segments**



**For all three segments,  
the magic inequality**

**Costs < Revenues < Perceived Value**

**must hold true**