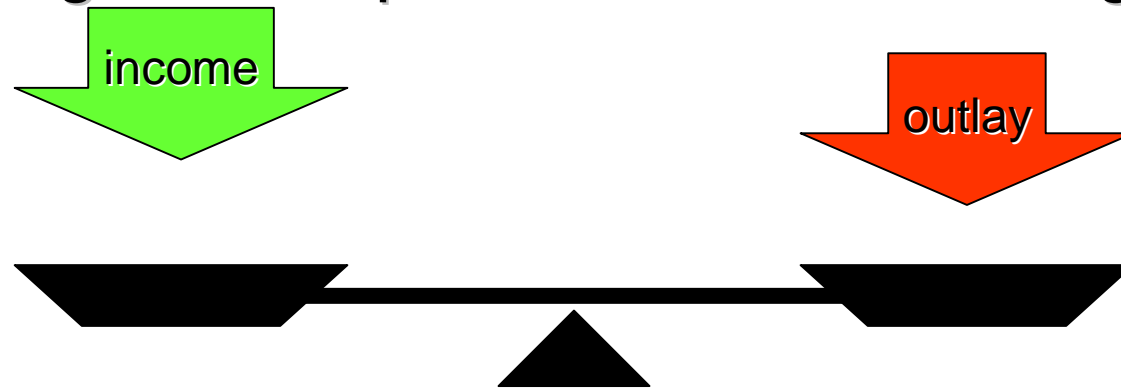


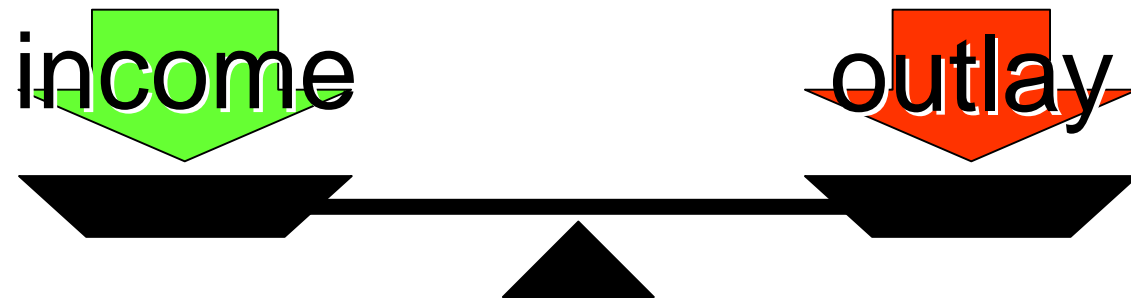
Nothing more expensive than a standing train!



Variable costs in railway transport are way below 10% !



..... irregular
REGULAR



Keep trains running (outside peak: calculate with marginal costs)

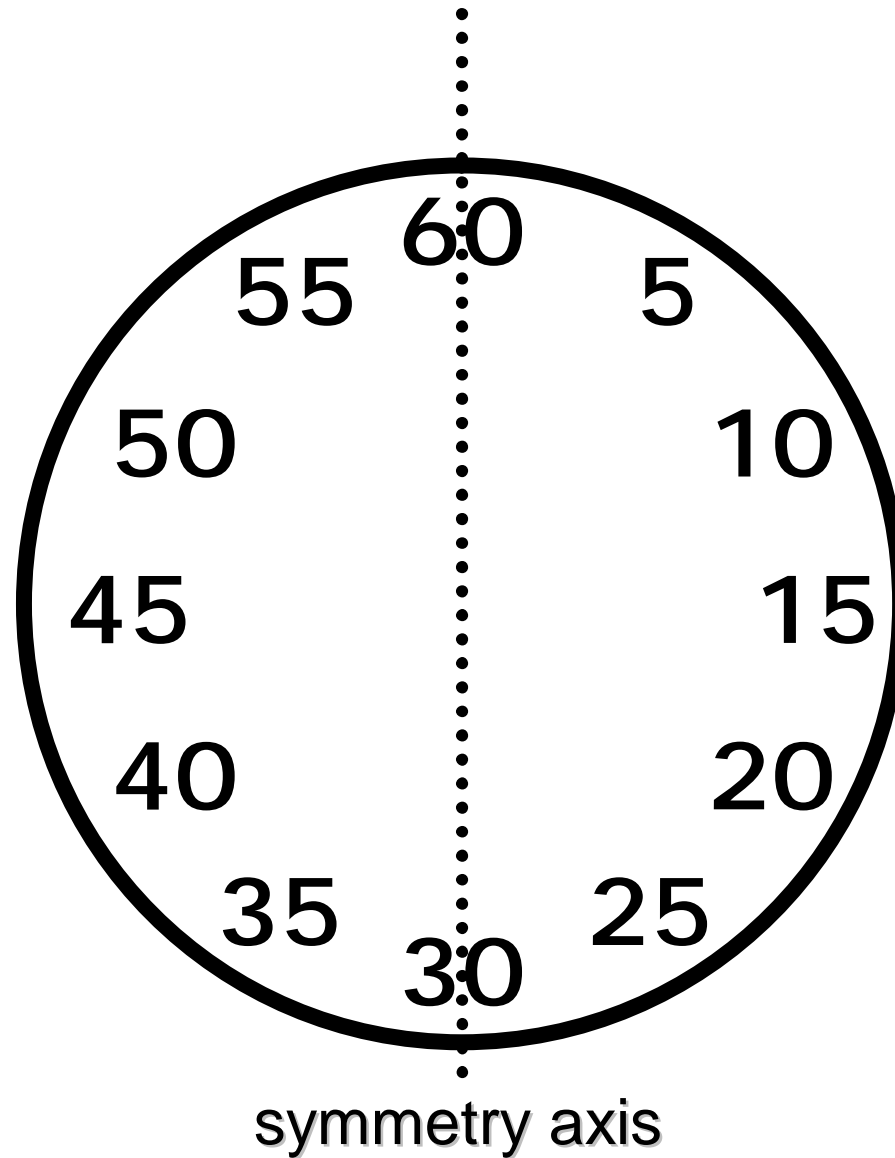


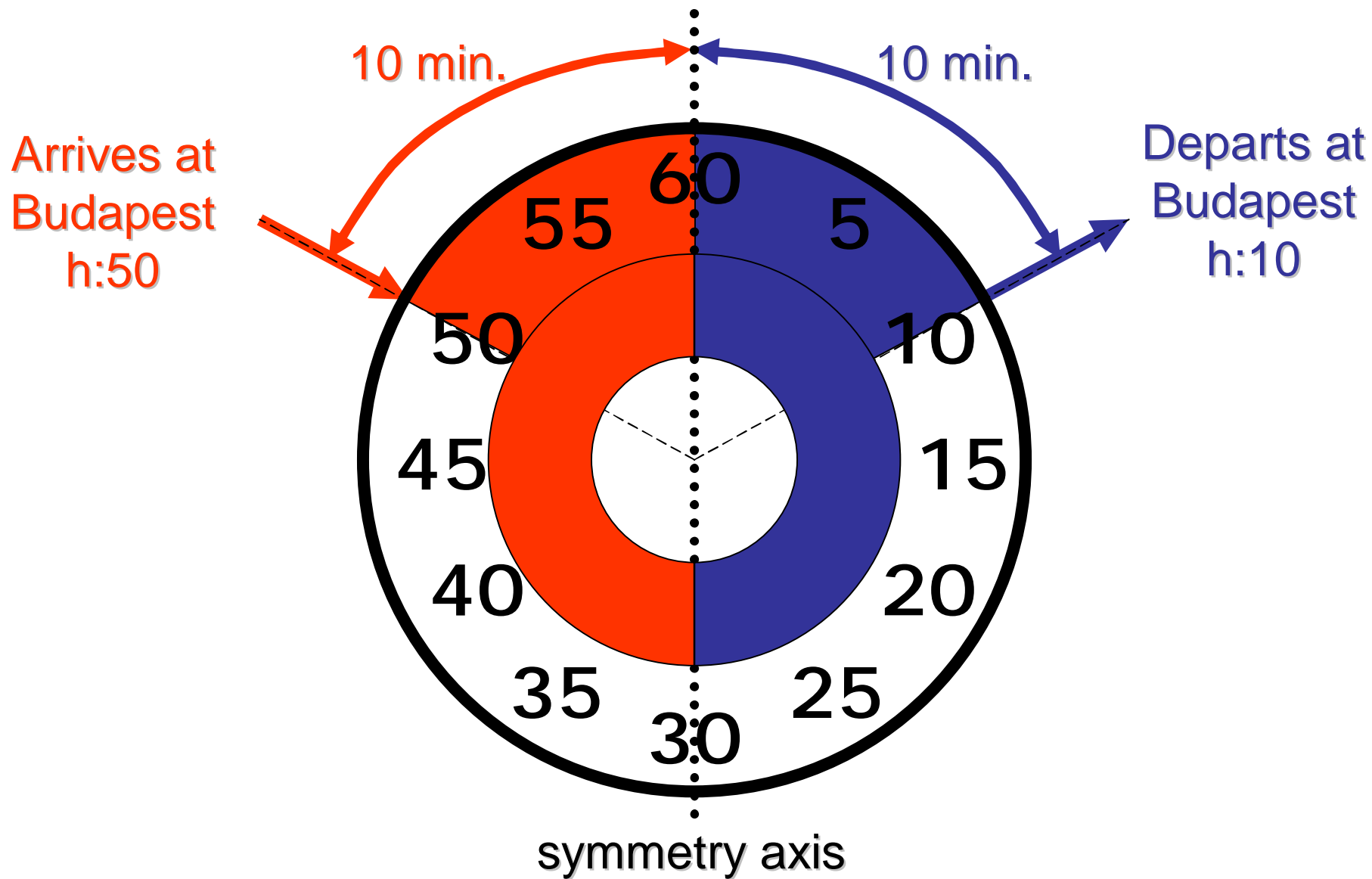
Regular Timetable

=

Periodical + Symmetrical
Timetable

Anywhere





PERIODICAL

Periodicity warrants optimal and transparent, predictable use of both railway tracks and rolling stock. If trains and buses run hourly all over the country and meet hourly at the junctions we get an efficient and attractive transport system, a viable alternative to individual road traffic.

- Timetable must be exactly reproduced every hour at least during the day time including the morning and evening peak hours.
- Any necessary extra services to meet peak demand and other transport needs must be inserted in a way not to disturb the basic cycle.

SYMMETRICAL

Symmetry warrants perfect possibilities to change trains or means of transport at the junctions („spiders”). In a symmetrical system passengers will know when their trains depart and arrive without referring to the timetable.

- If they have to change trains both ways they will have to change at the same junctions.
- If travelling from A to B, in a symmetric system a train will depart from A each „ τ ” minutes after a full hour and a train will also run back from B to A exactly „ τ ” minutes before the full hour.



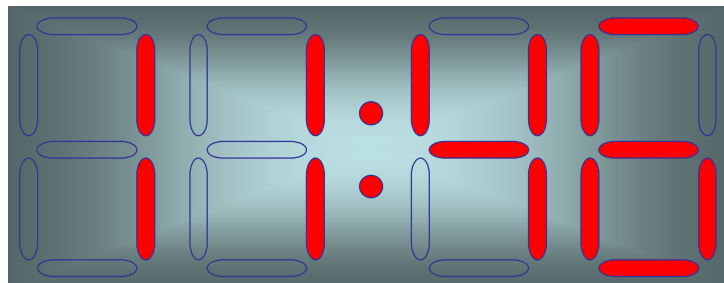
HIDASNÉMETI – FÜZESABONY *Regional*

FÜZESABONY
EGER – BUDAPEST *Sprinter*

MISKOLC – BUDAPEST *InterCity*

BUDAPEST – MISKOLC *InterCity*

BUDAPEST – EGER *Sprinter*



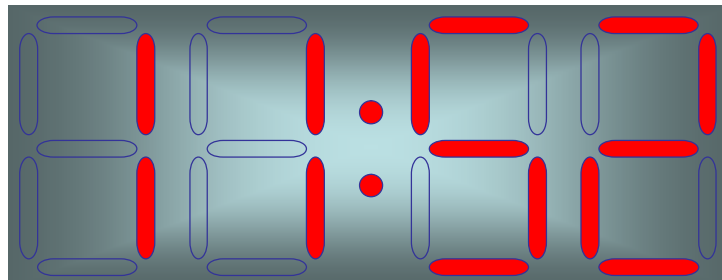


HIDASNÉMETI – FÜZESABONY *Regional*

EGER – BUDAPEST *Sprinter*

MISKOLC – BUDAPEST *InterCity*

BUDAPEST – MISKOLC *InterCity*



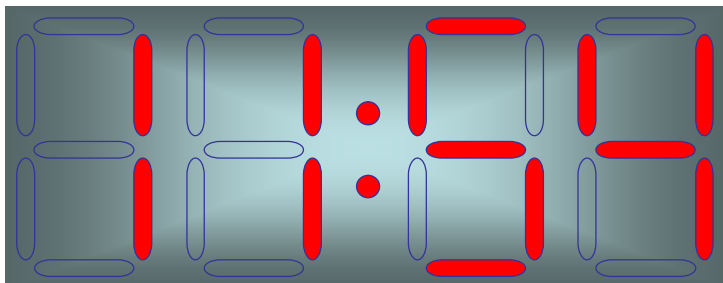


HIDASNÉMETI – FÜZESABONY *Regional*



MISKOLC – BUDAPEST *InterCity*

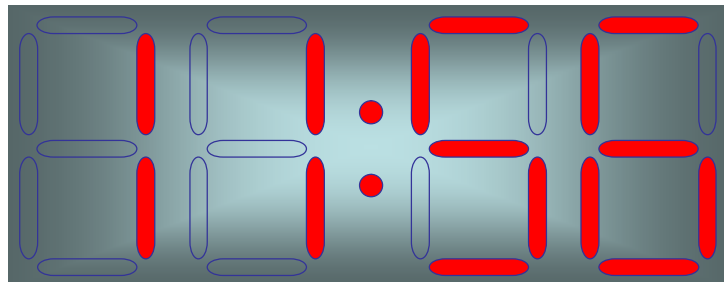
BUDAPEST – MISKOLC *InterCity*





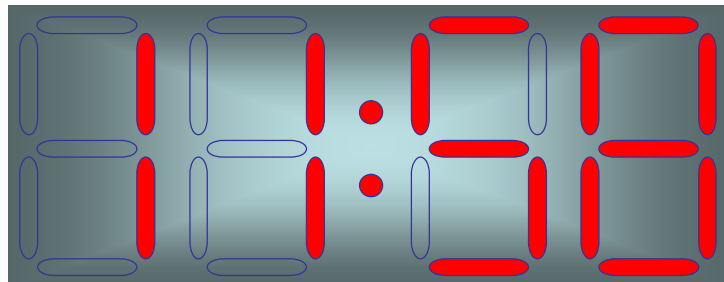
MISKOLC – BUDAPEST *InterCity*

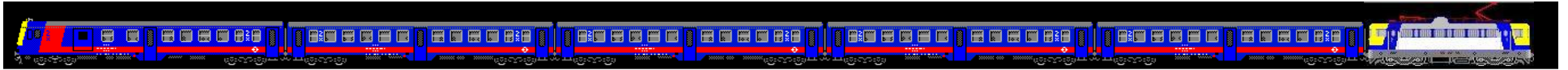
BUDAPEST – MISKOLC *InterCity*



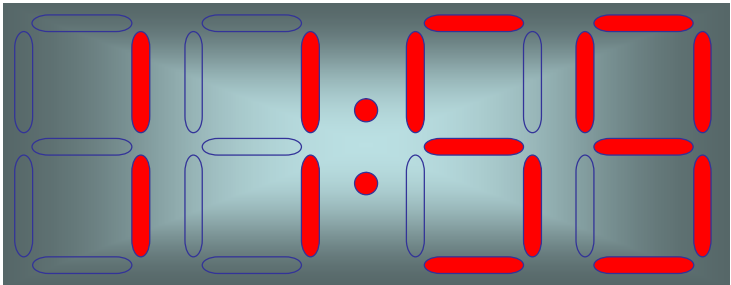
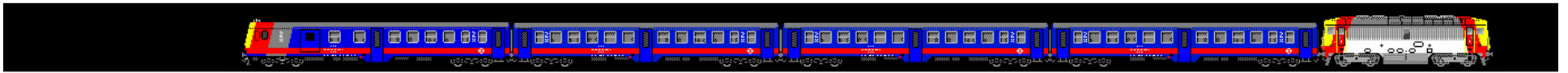
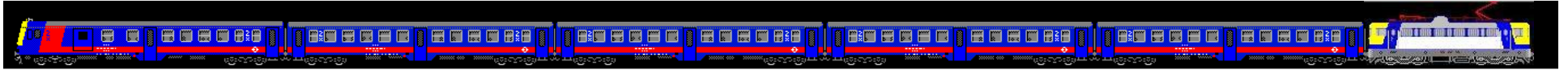


MISKOLC – BUDAPEST *InterCity*



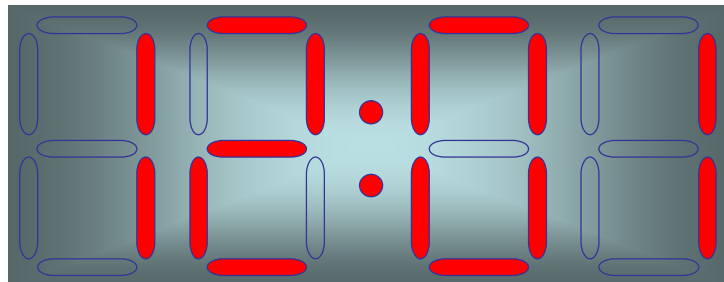


MISKOLC – BUDAPEST *InterCity*



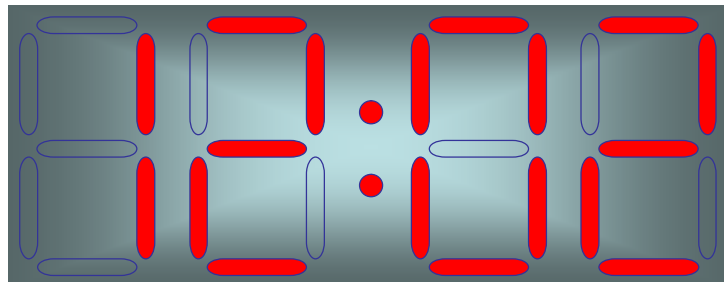


BUDAPEST – MISKOLC *InterCity*





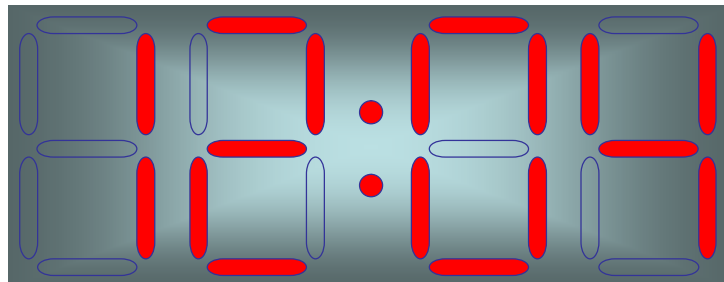
BUDAPEST – MISKOLC *InterCity*





MISKOLC – BUDAPEST *InterCity*

BUDAPEST – MISKOLC *InterCity*

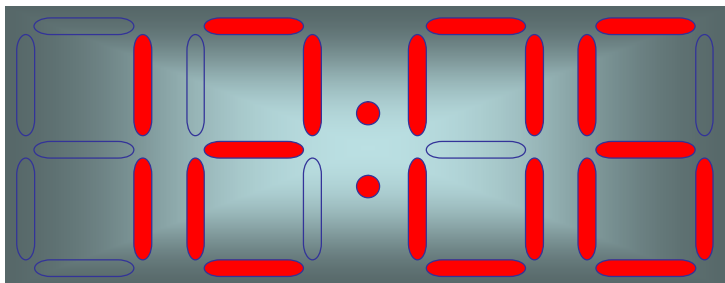


FÜZESABONY – HIDASNÉMETI *Regional*



MISKOLC – BUDAPEST *InterCity*

BUDAPEST – MISKOLC *InterCity*



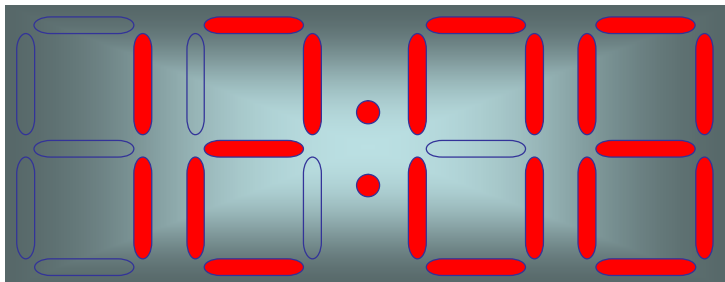
FÜZESABONY – HIDASNÉMETI *Regional*



MISKOLC – BUDAPEST *InterCity*

BUDAPEST – MISKOLC *InterCity*

BUDAPEST – EGER *Sprinter*



FÜZESABONY – HIDASNÉMETI *Regional*

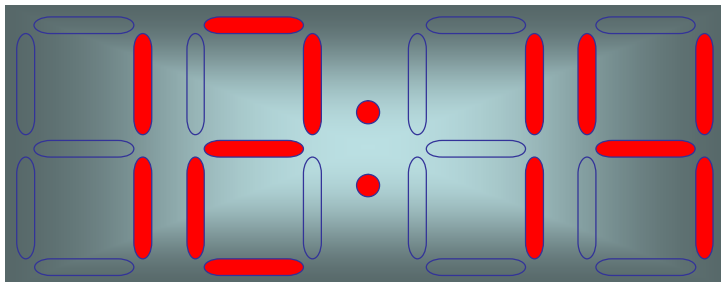


EGER – BUDAPEST *Sprinter*

MISKOLC – BUDAPEST *InterCity*

BUDAPEST – MISKOLC *InterCity*

BUDAPEST – EGER *Sprinter*



FÜZESABONY – HIDASNÉMETI *Regional*



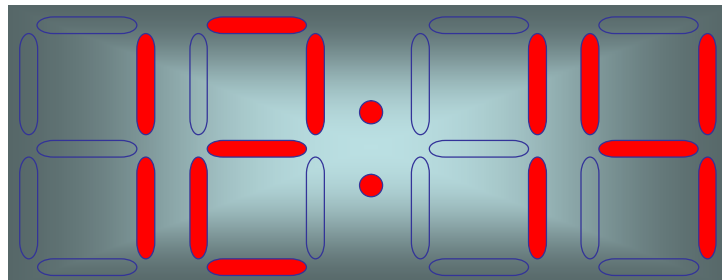
EGER – BUDAPEST *Sprinter*

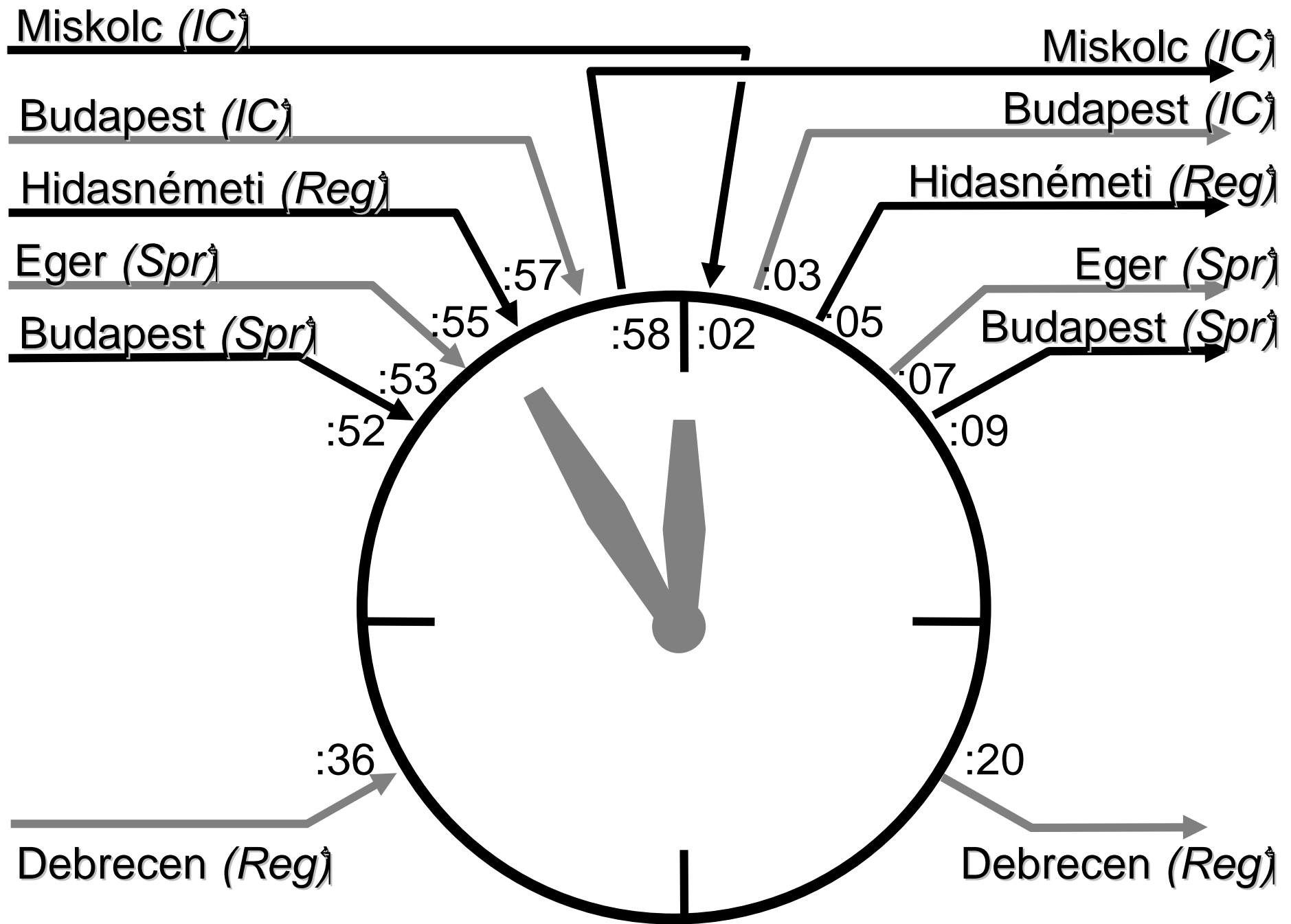
MISKOLC – BUDAPEST *InterCity*

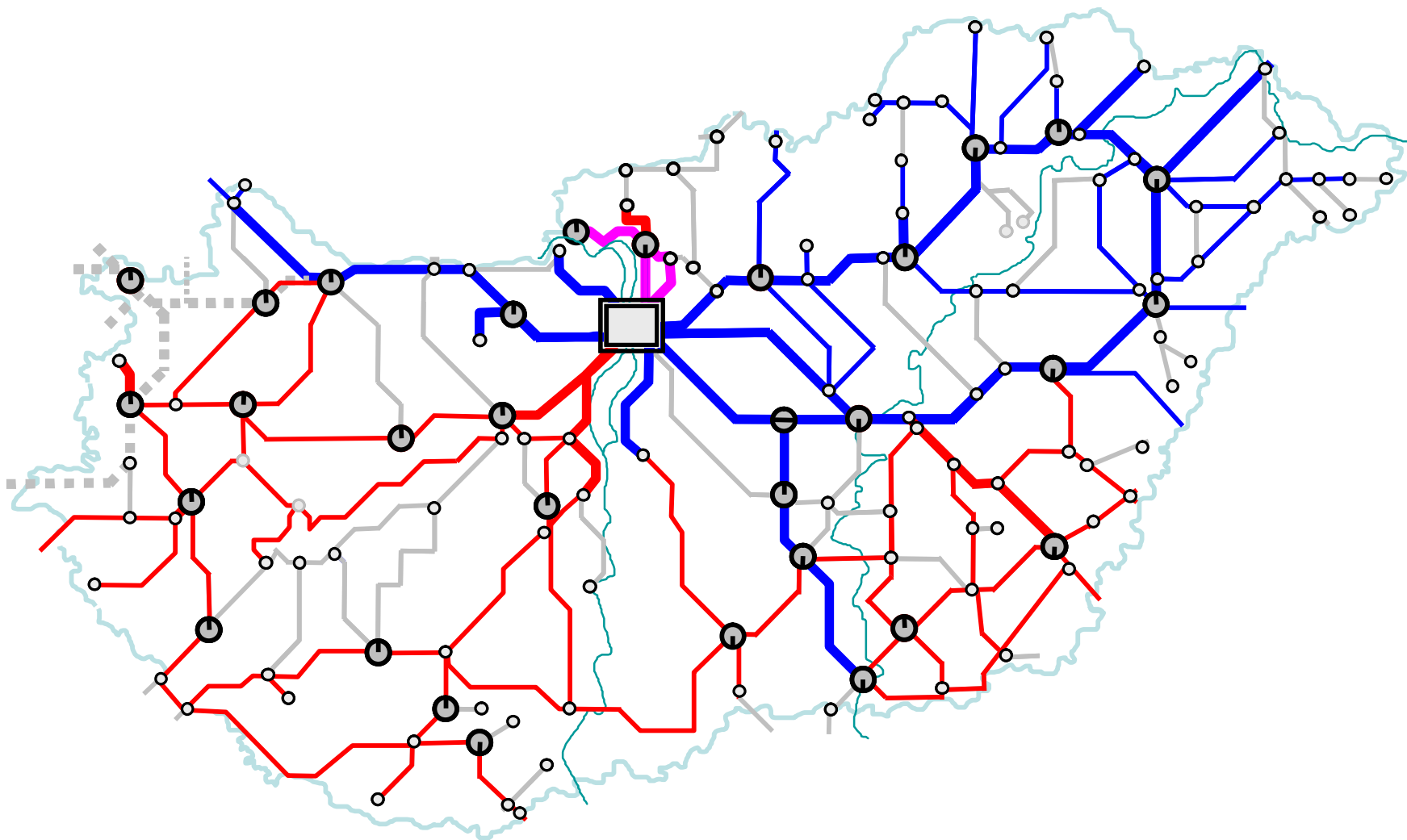
BUDAPEST – MISKOLC *InterCity*

BUDAPEST – EGER *Sprinter*

FÜZESABONY– DEBRECEN *Regional*







Regular Timetable in Hungary

1. 29 August 2004: first line adapted a regular timetable structure with two types of service, regional trains to Vác and „zoning” type sprinter trains to Szob passing by Vác

- 53% increase in train service
- same number of train sets and personnel
- 11% more passengers

2. Regular Timetable structure introduced in Northeastern Hungary

3. Regular Timetable structure introduced in Western and Southern Hungary („watered down” version)

Previously

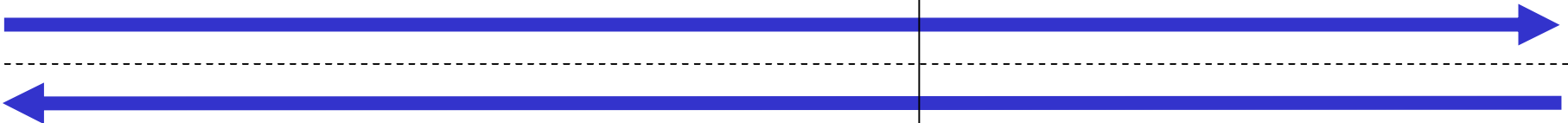
h:00 Budapest Ü Vác h:46



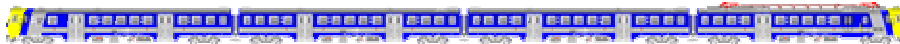
h:30 Budapest Ü Szob



h+1:50



h+2:38 Budapest Ü Vác h+1:51



h+4:08

Budapest Ü Szob h+2:47



Budapest – Vác: 3 trainsets

Budapest – Szob: 2 x 4 trainsets

Together: 11 sets

„Zoning”

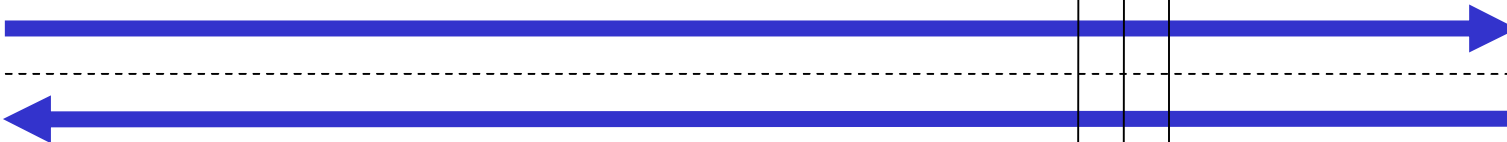
h:00 Budapest Ü Vác h:45



h:30 Budapest Ü Vác h+1:15



h:55 Budapest Ü Szob h+1:52



h+2:07 Budapest Ü Vác h+1:22



h+2:37 Budapest Ü Vác h+1:52



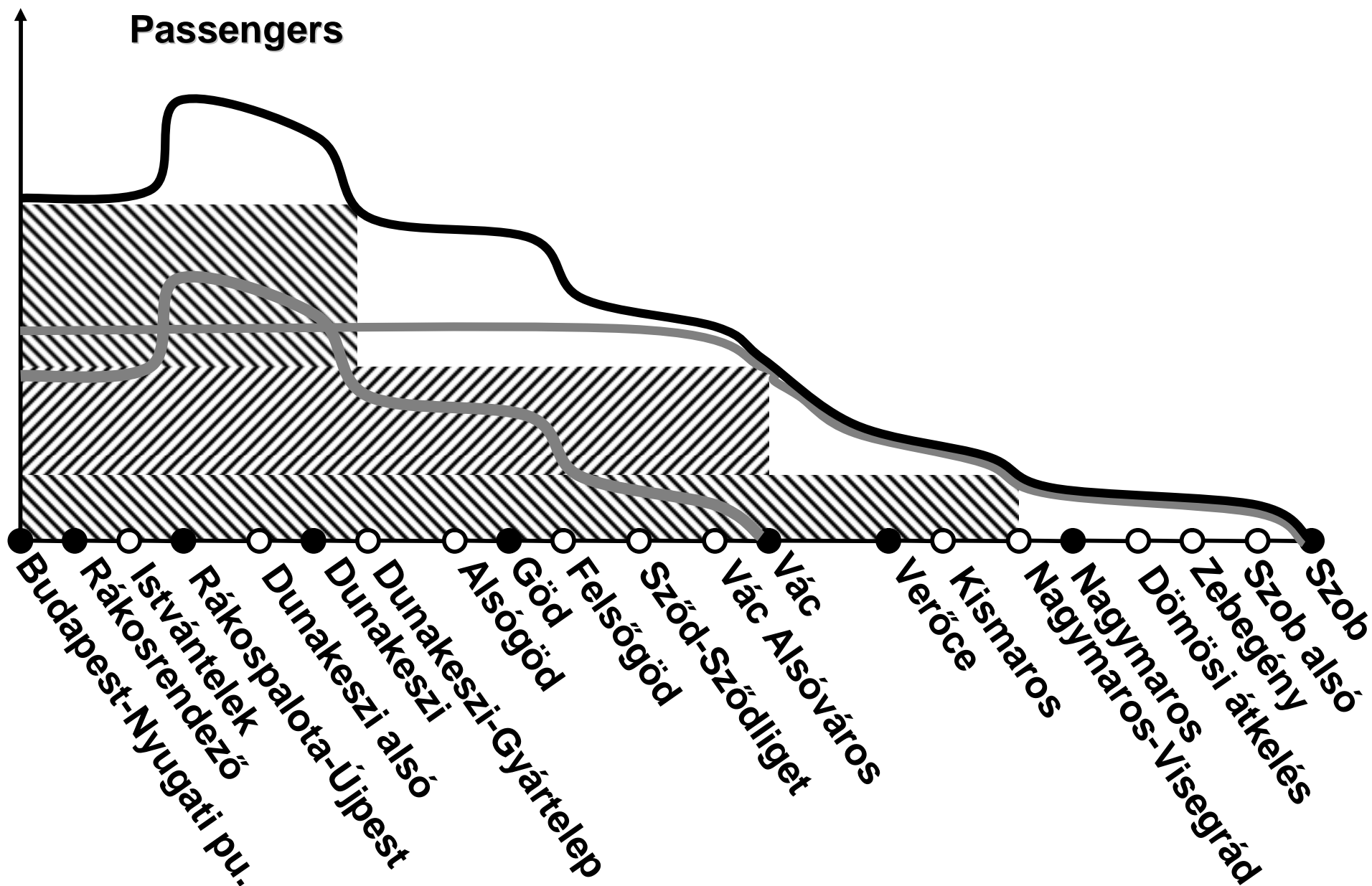
h+3:42 Budapest Ü Szob h+2:45



Budapest – Vác: 5 trainsets

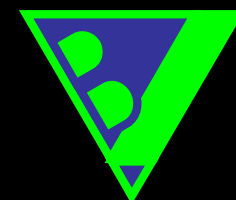
Budapest – Szob: 3 trainsets

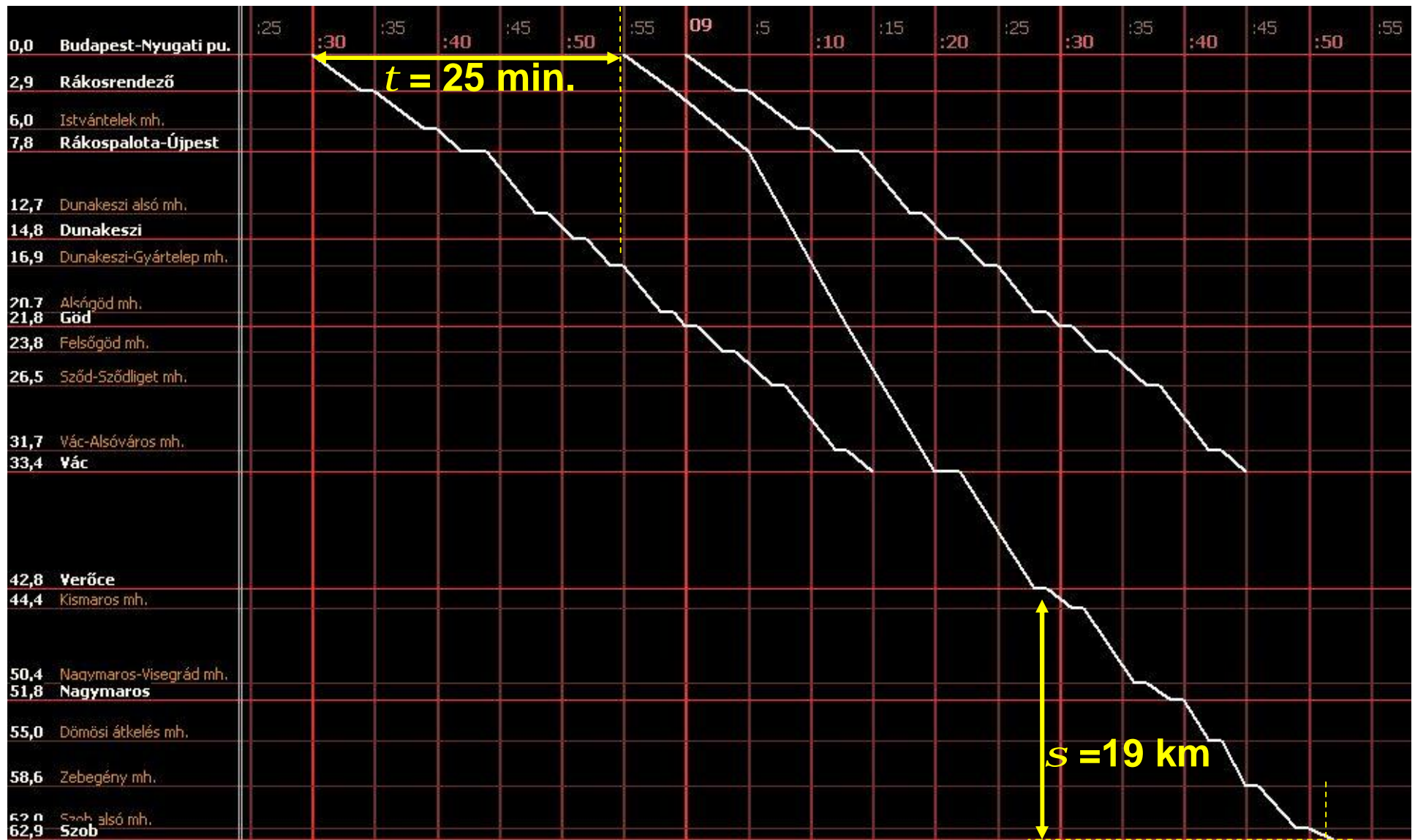
Together: 8 trainsets





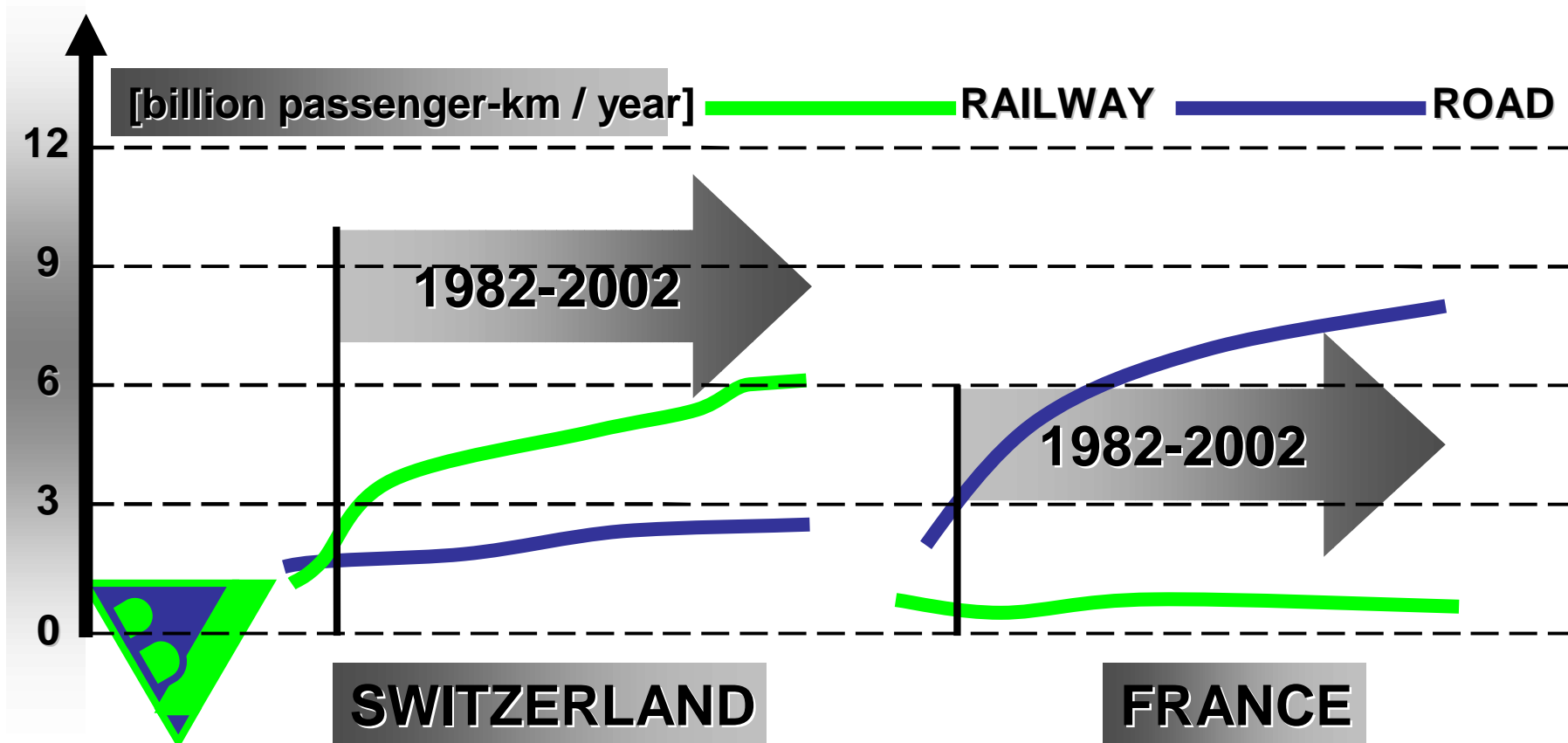
Previous structure

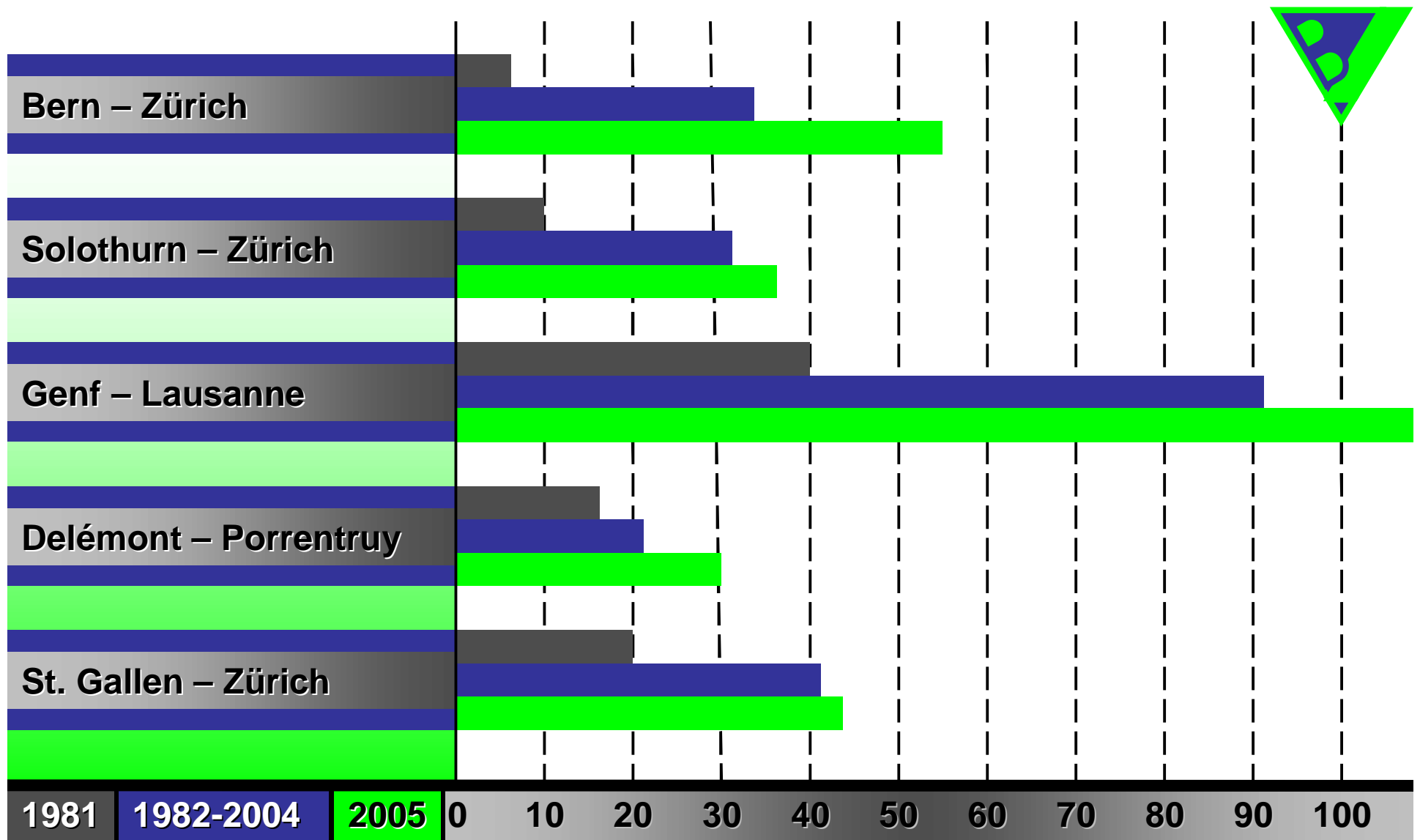


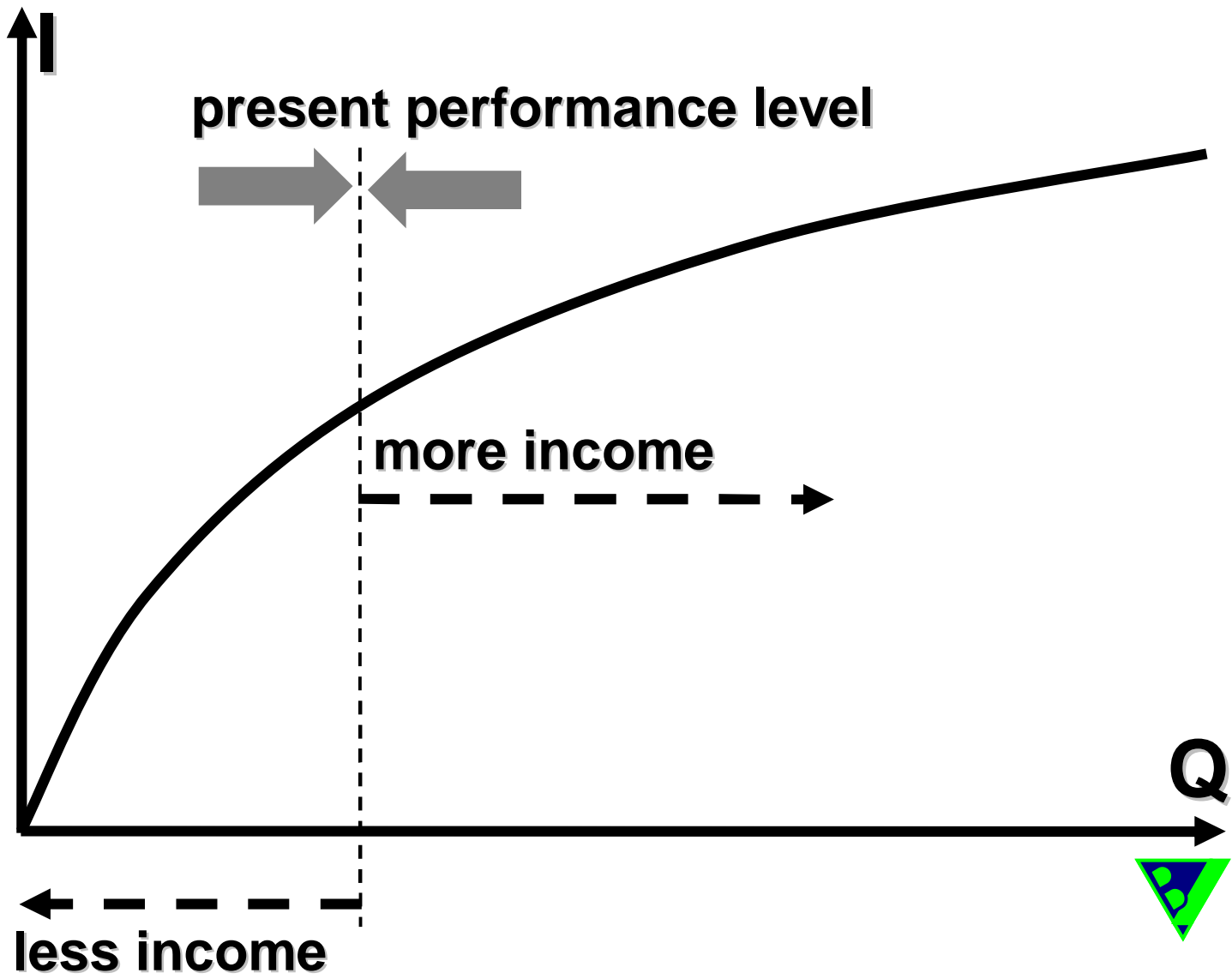


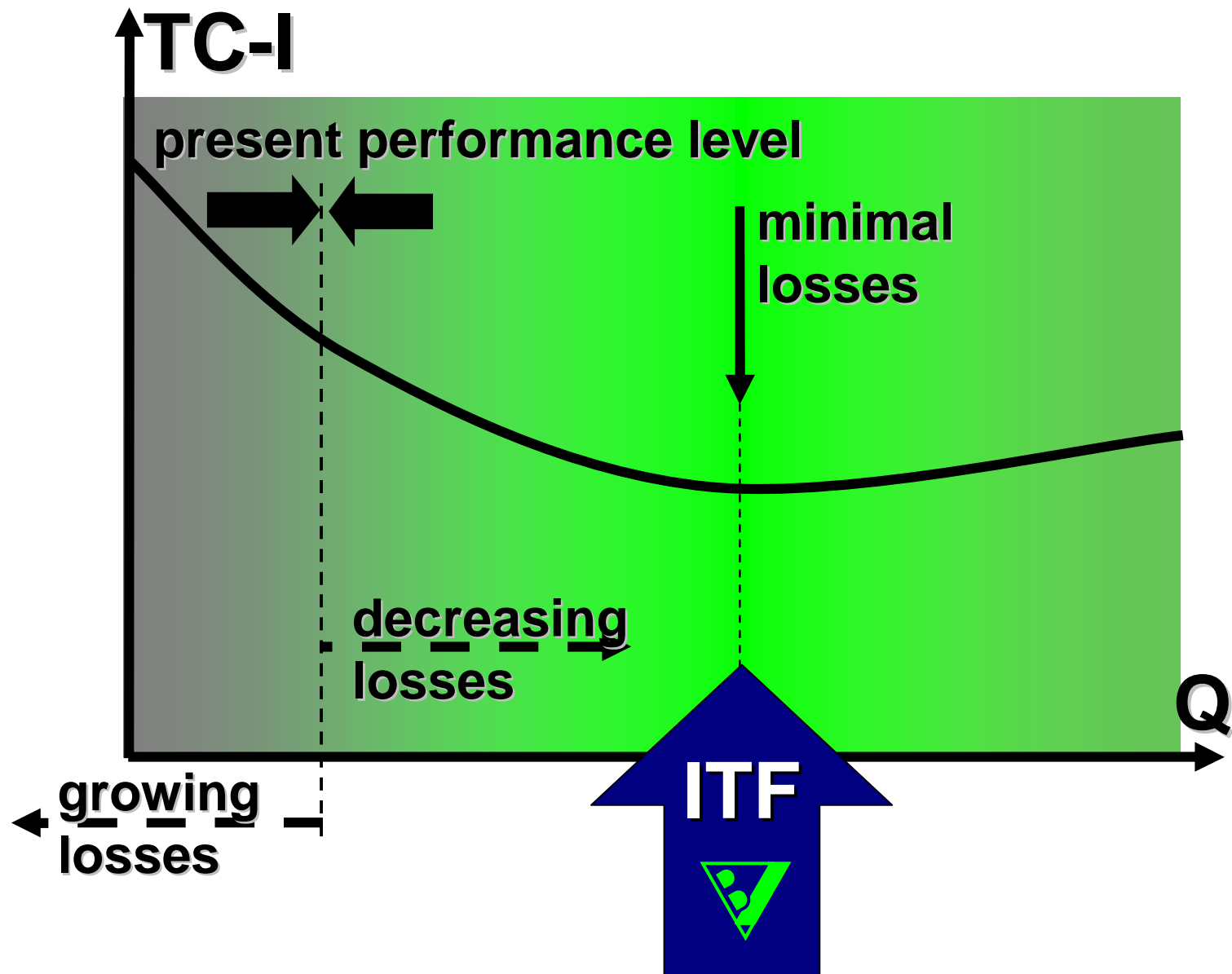
„Zoning” (Sprinter) structure

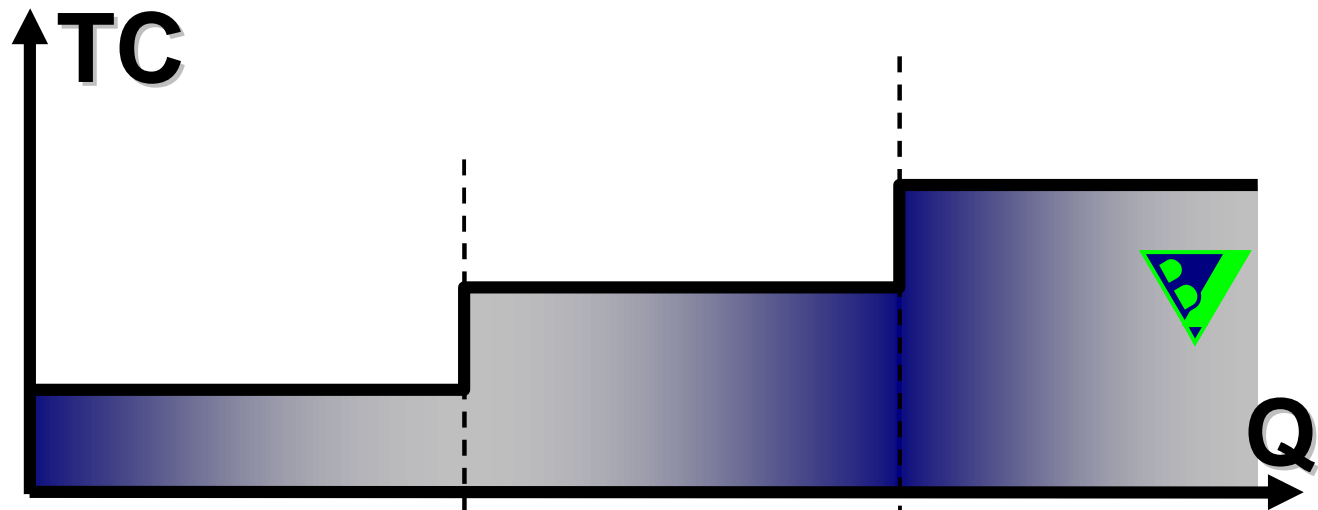












maximum efficiency (1)

maximum efficiency (2)

