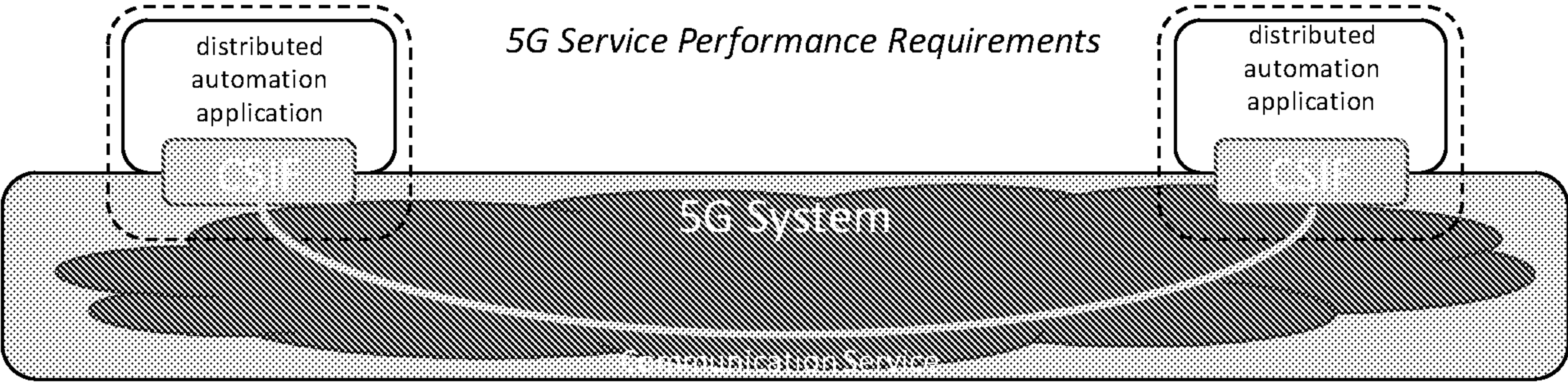




CSIF – Communication Service Interface between distributed automation application/function and 5G system

Fig. 1

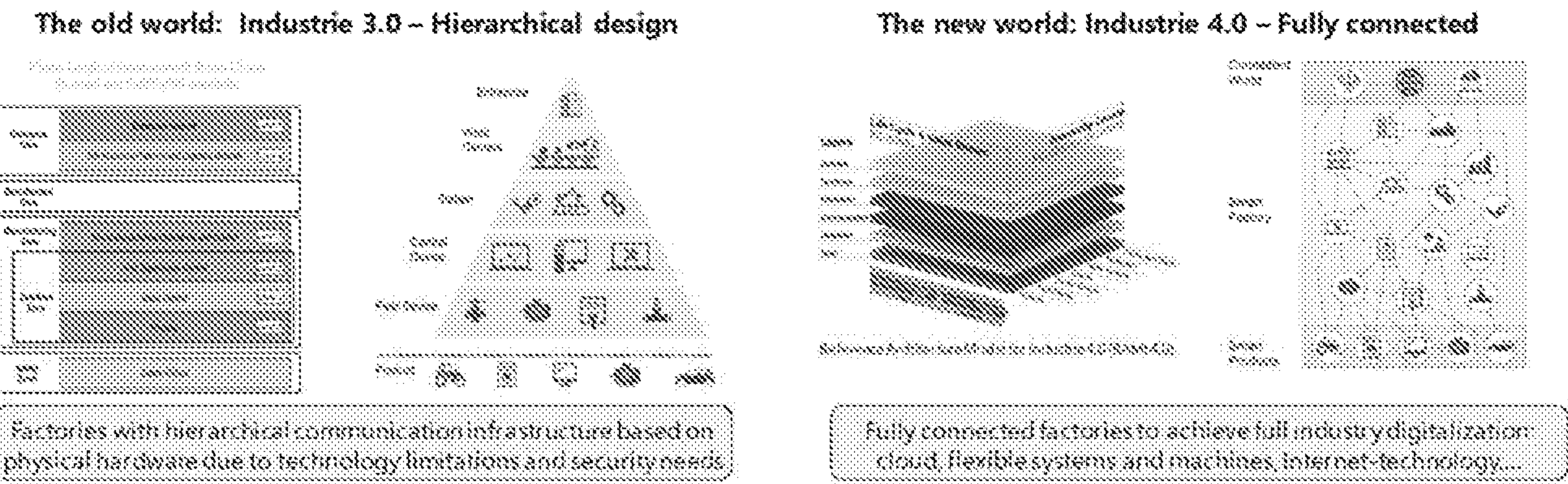


Fig. 2

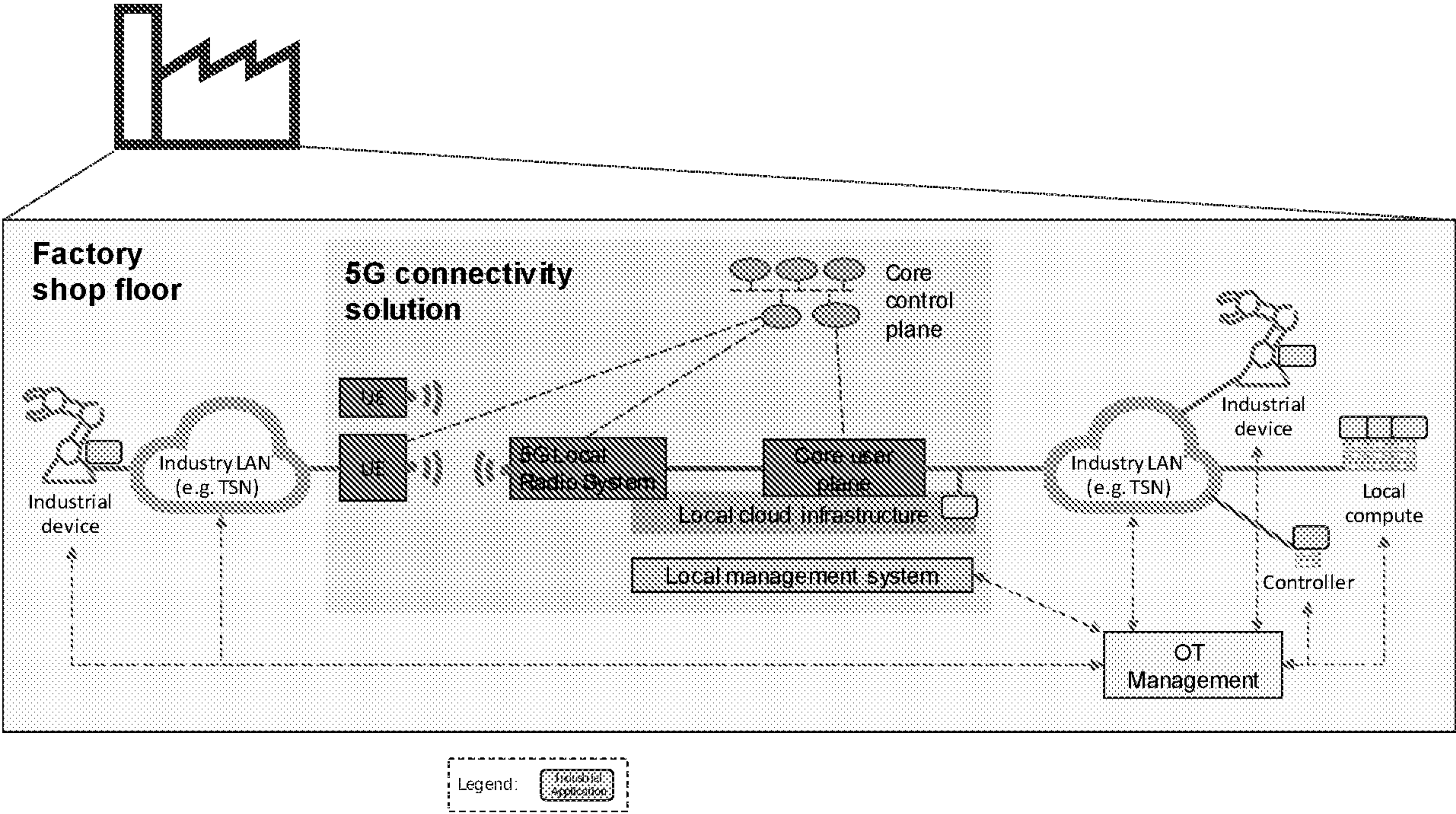


Fig. 3

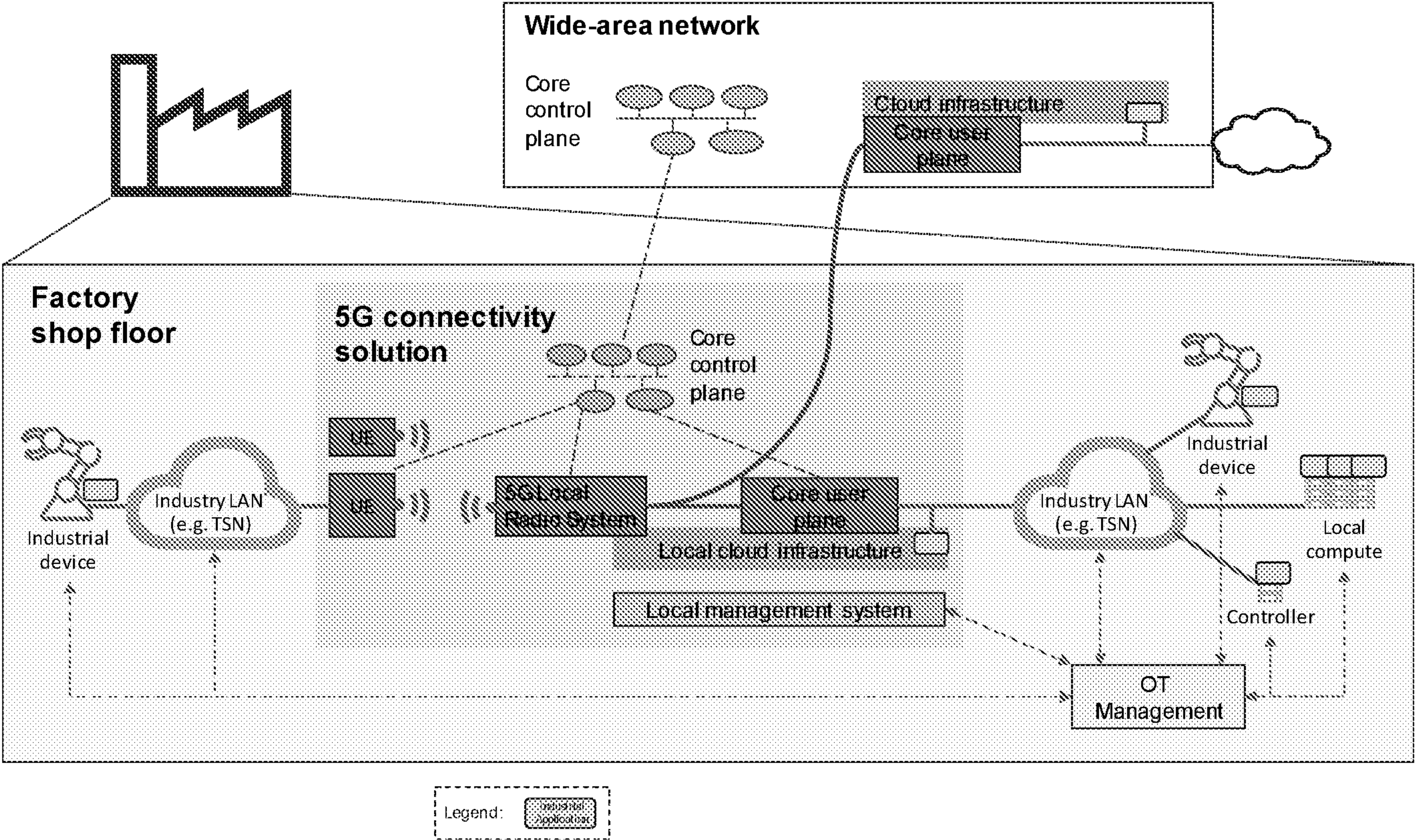


Fig. 4

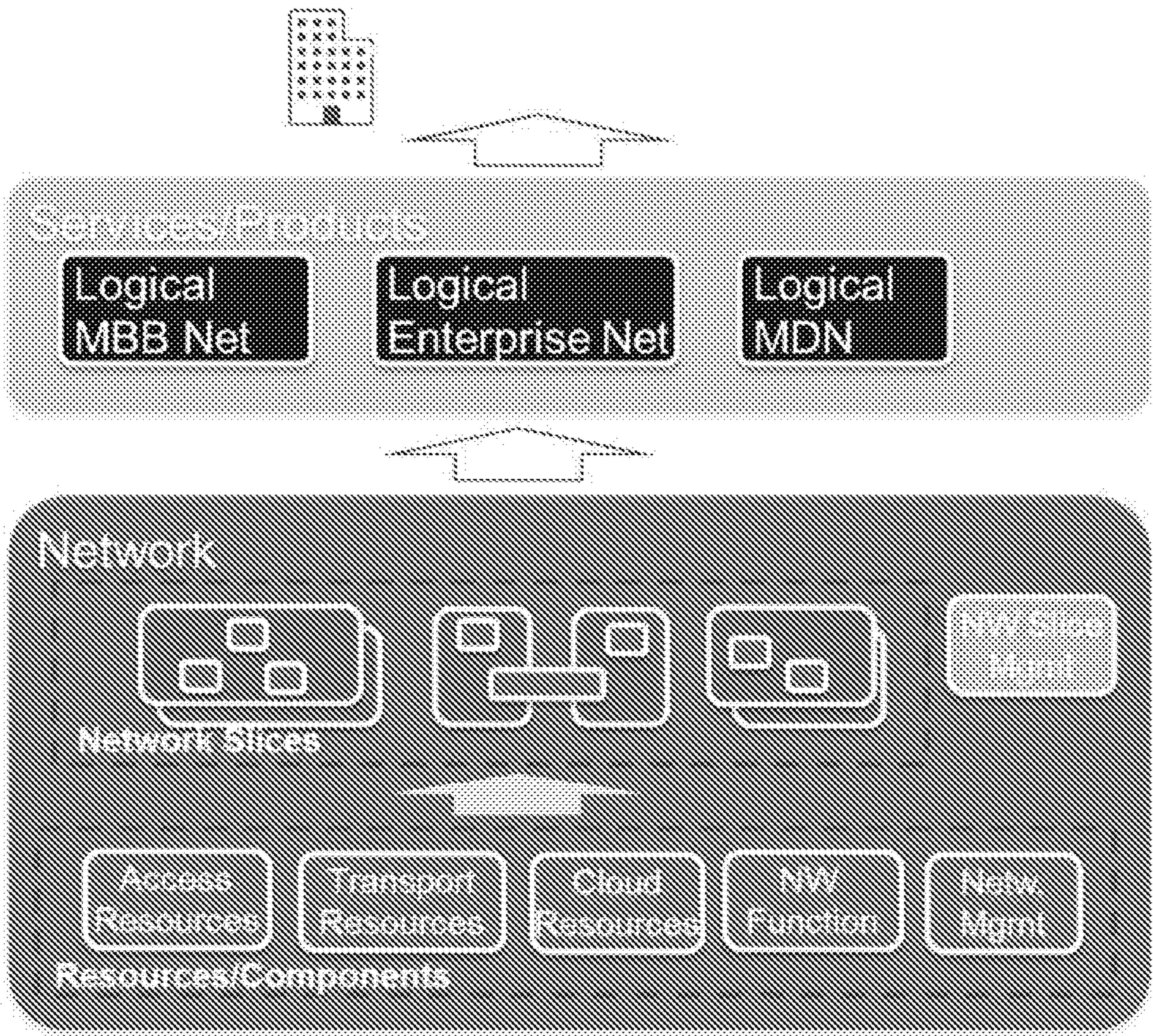


Fig. 5

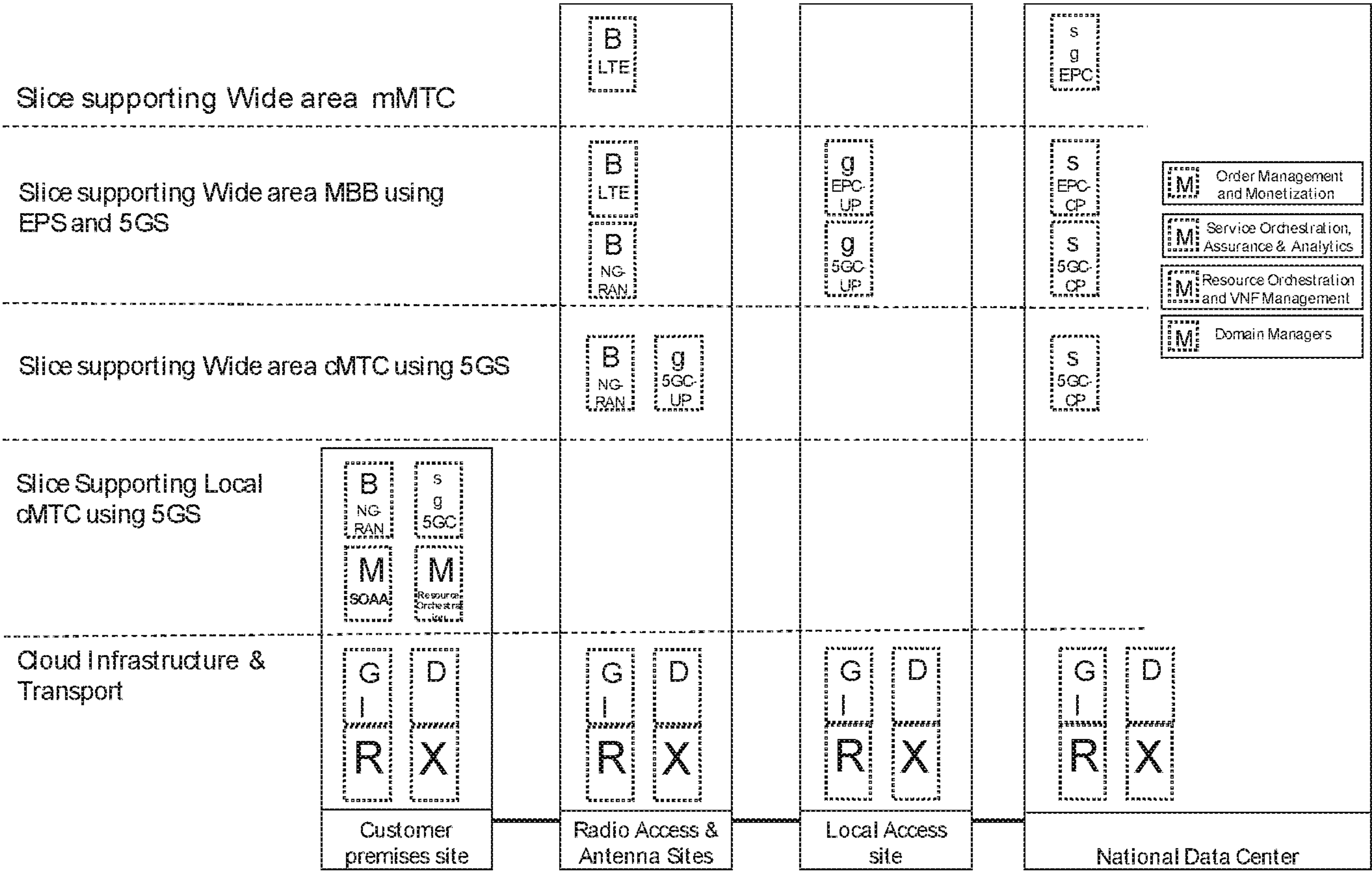


Fig. 6

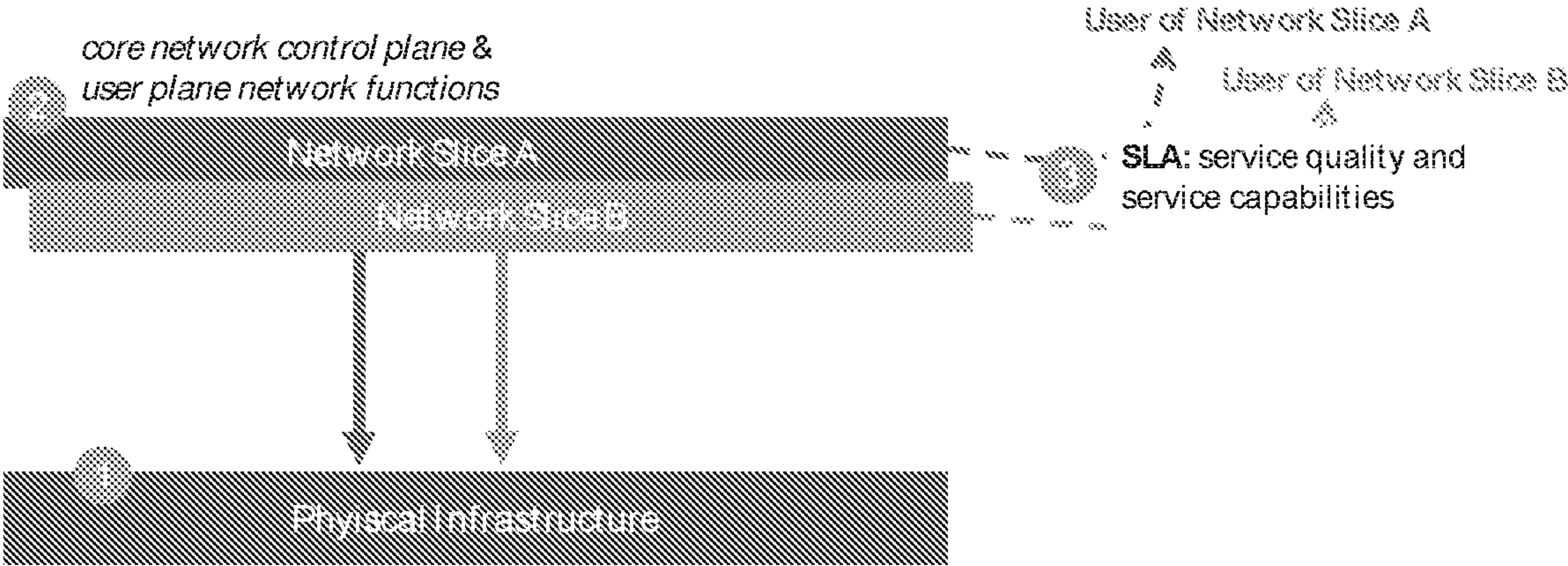


Fig. 7

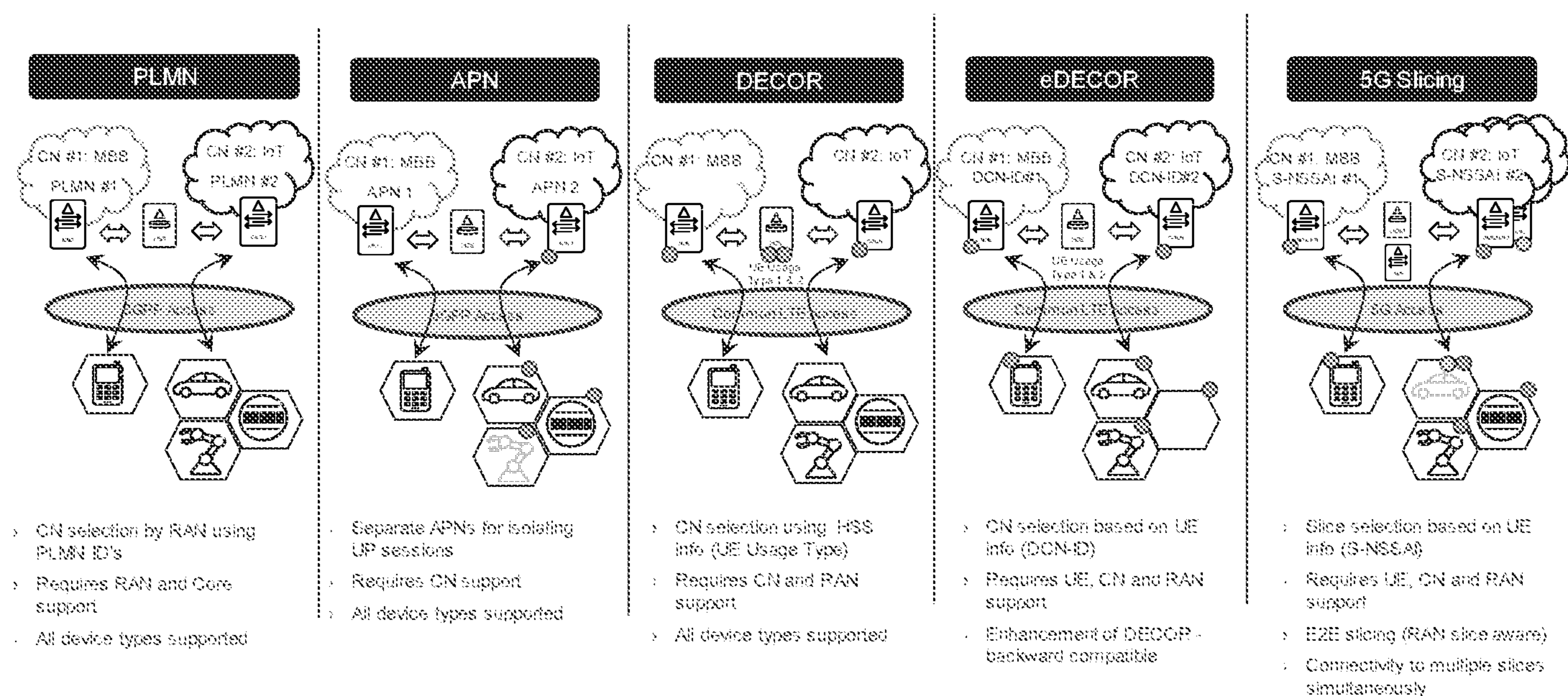


Fig. 8

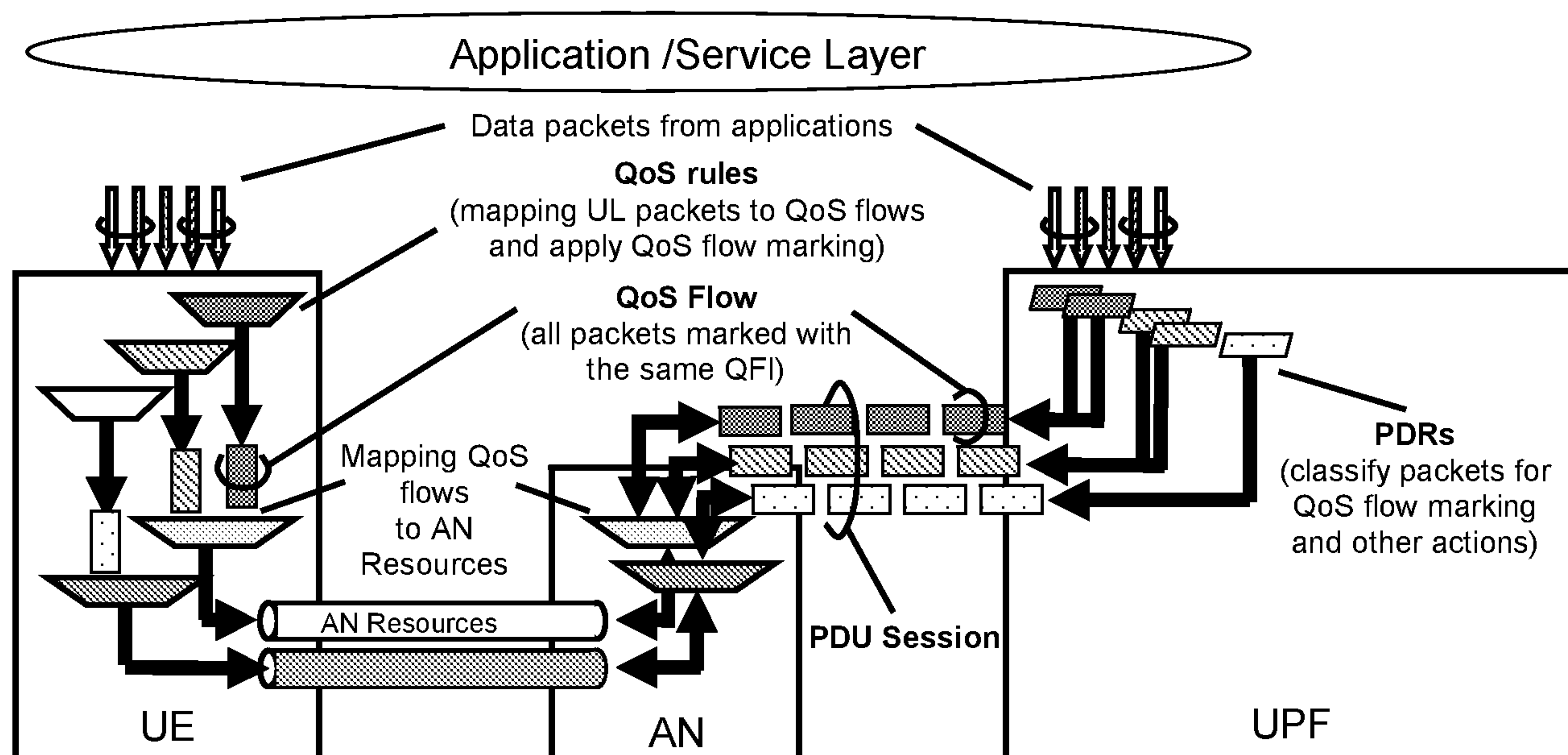


Fig. 9

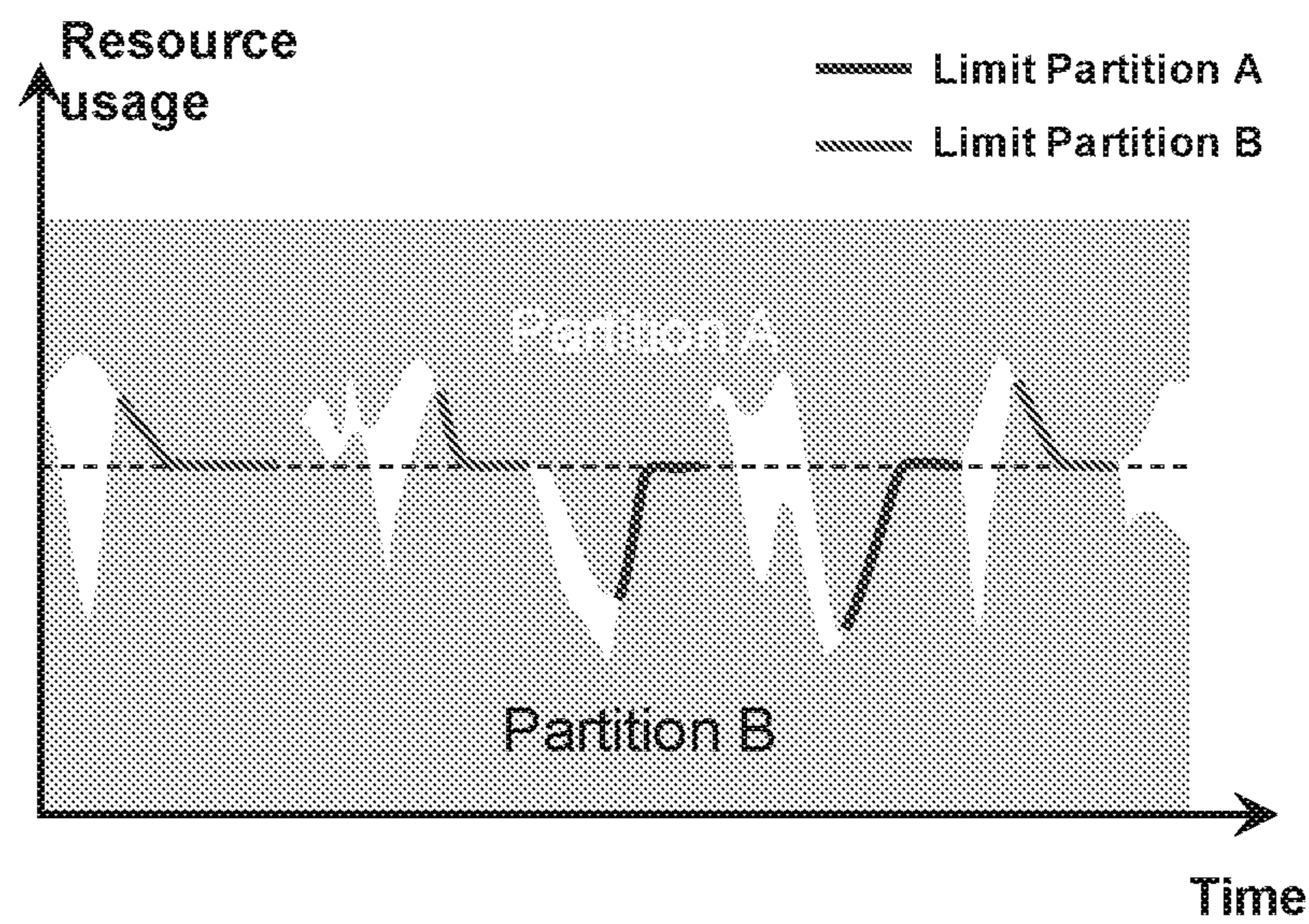


Fig. 10

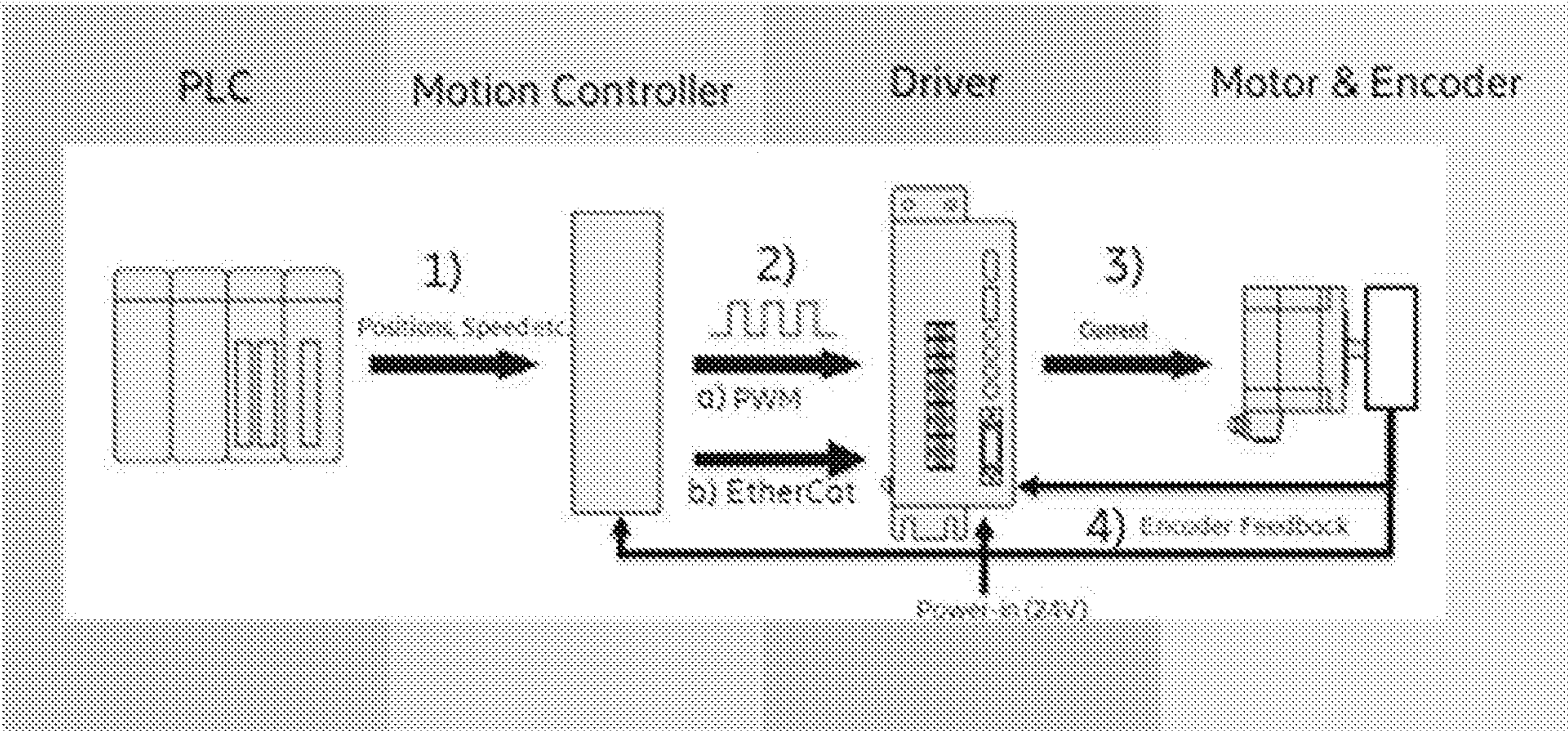


Fig. 11

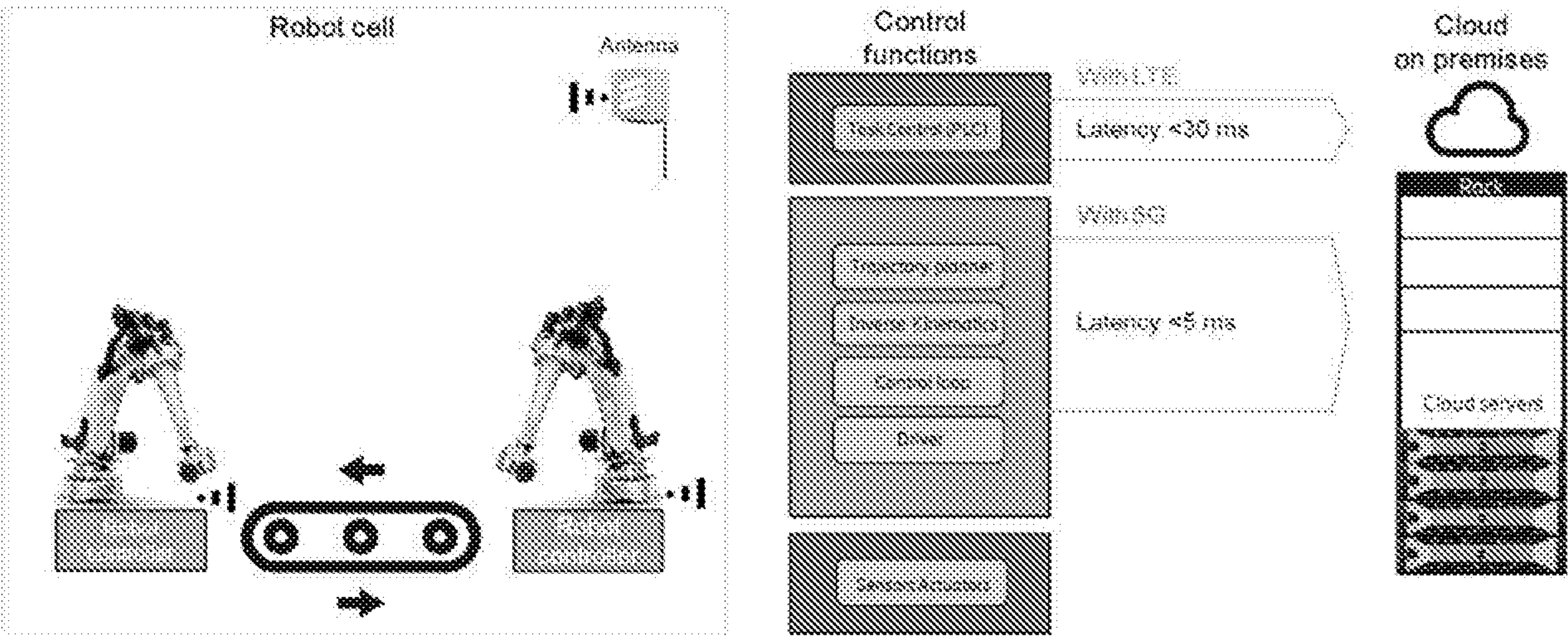


Fig. 12

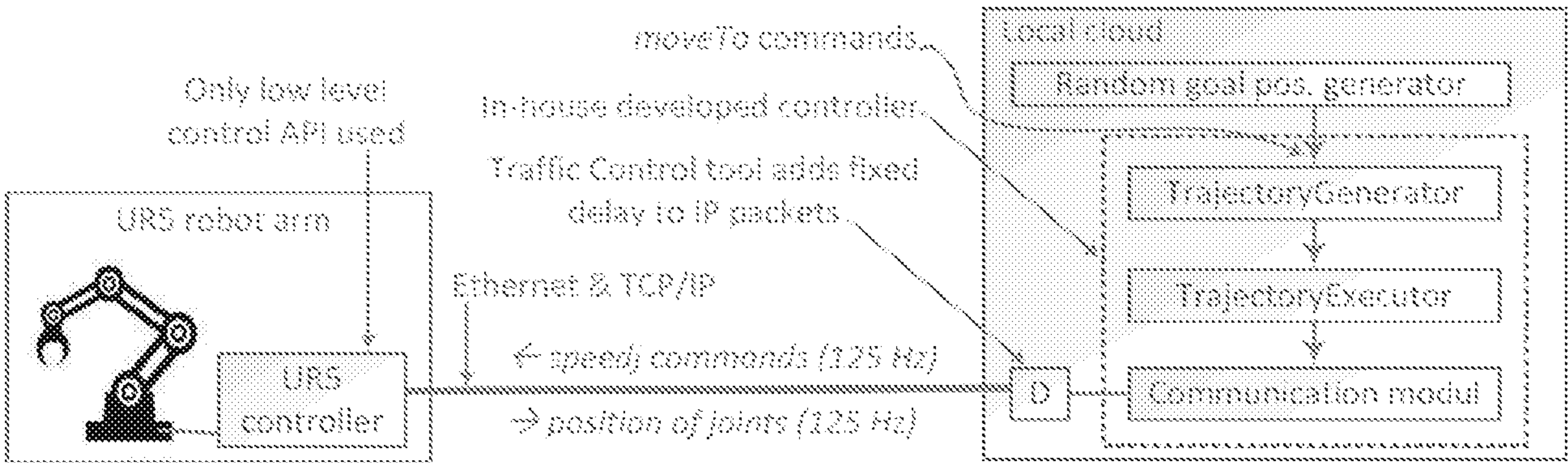


Fig. 13

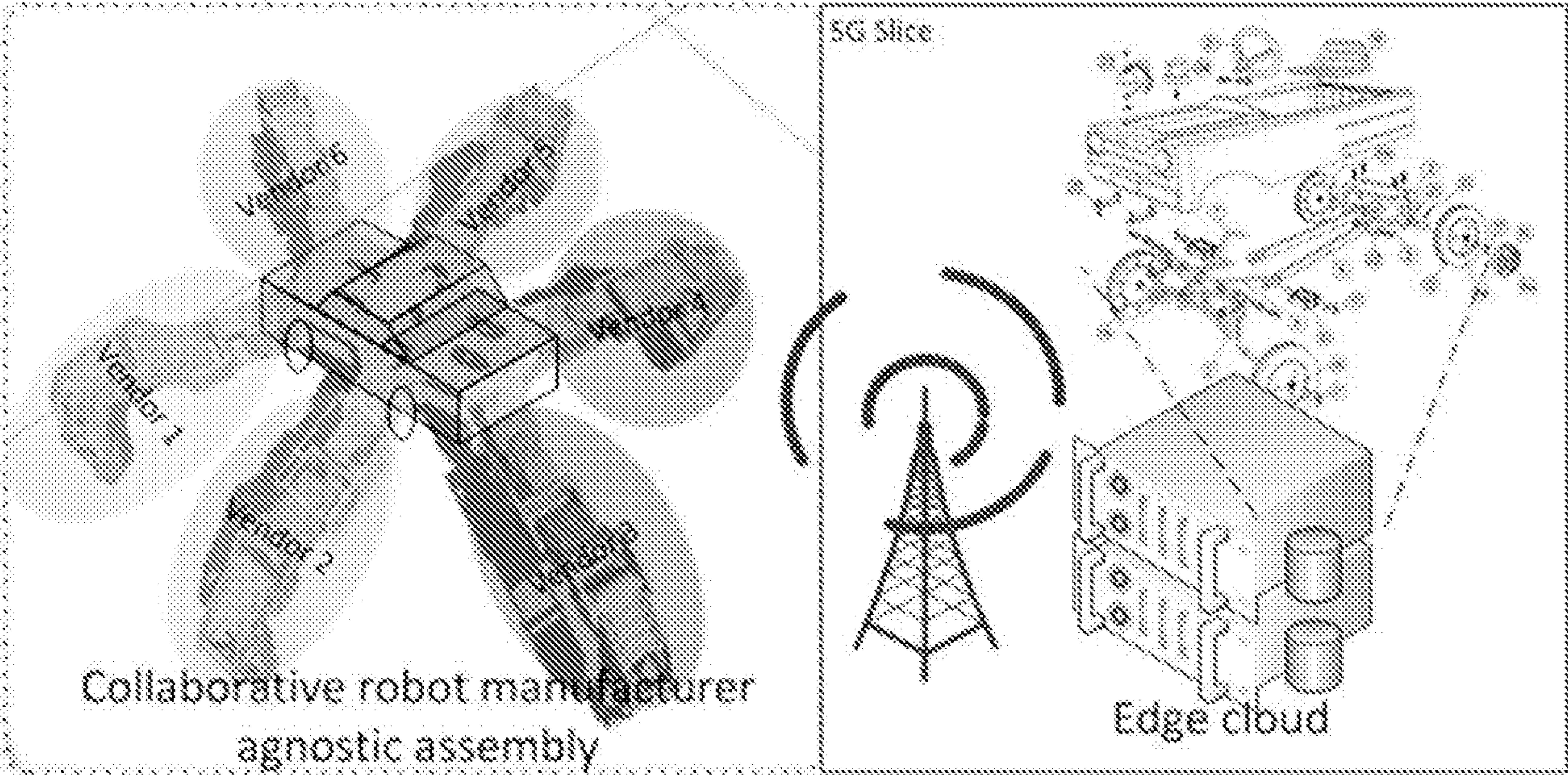


Fig. 14

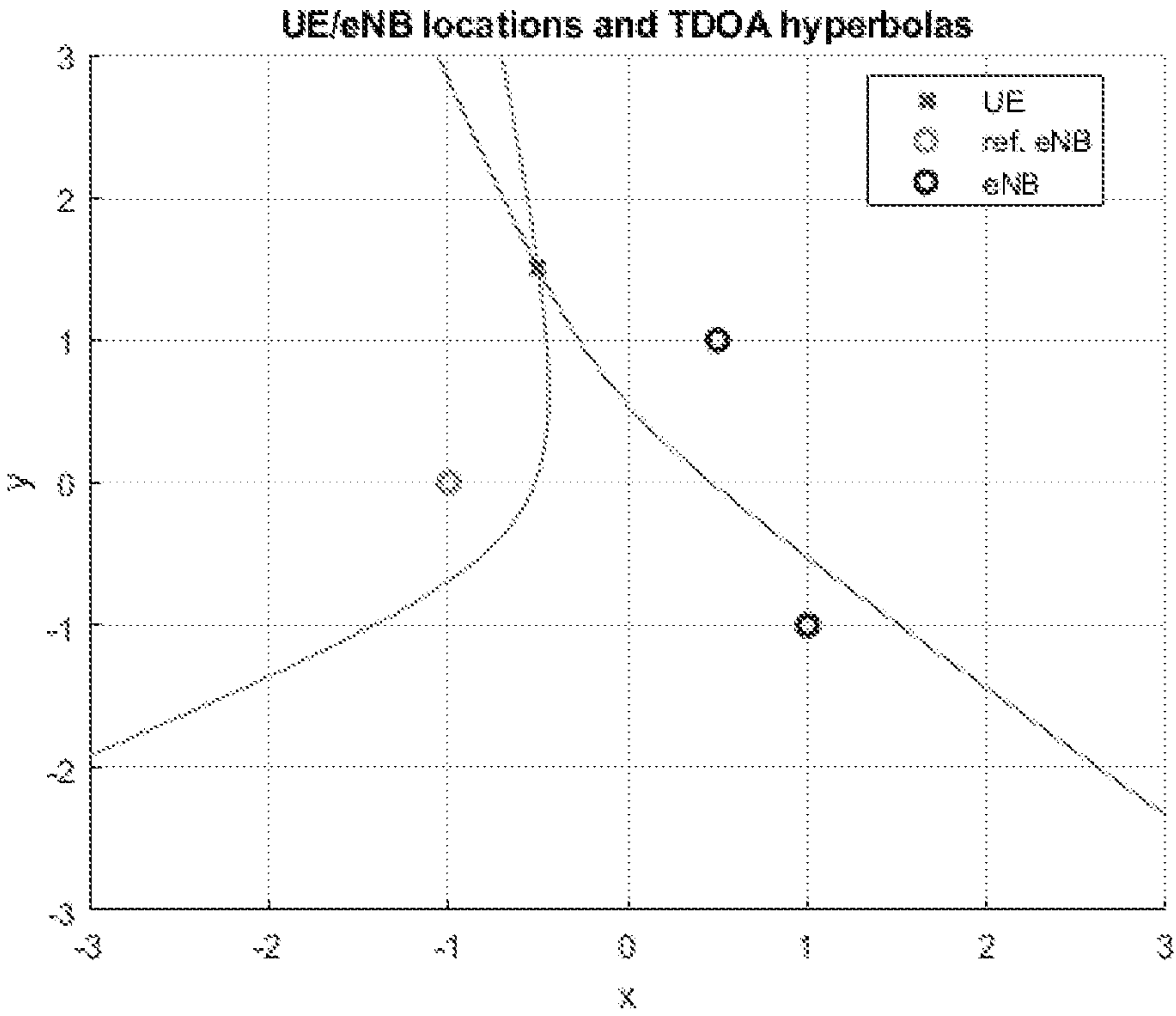


Fig. 15

100, power-boosted TRS, ISD = 20m, 12 BSs, 4GHz carrier freq., perfect sync.

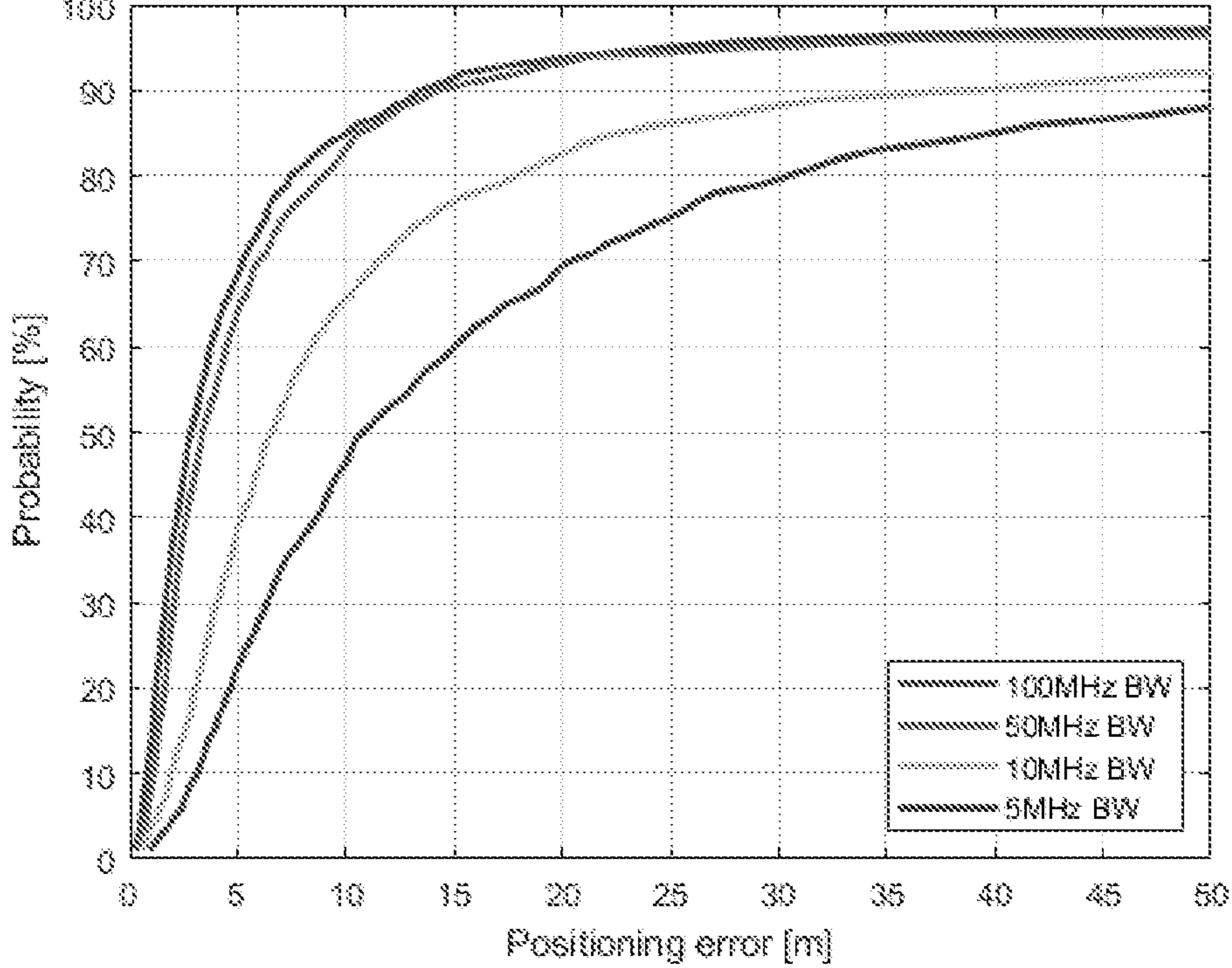


Fig. 16

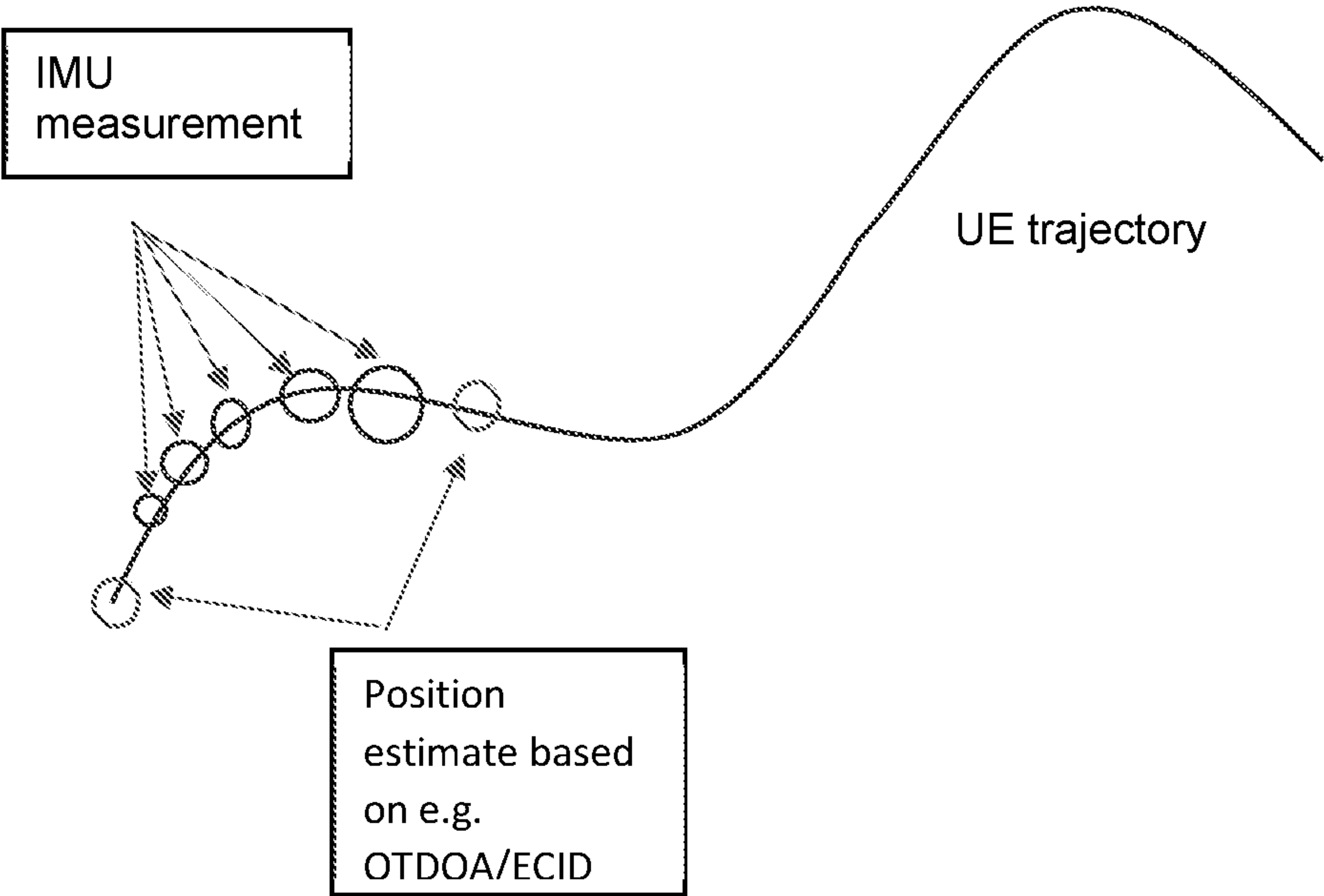


Fig. 17

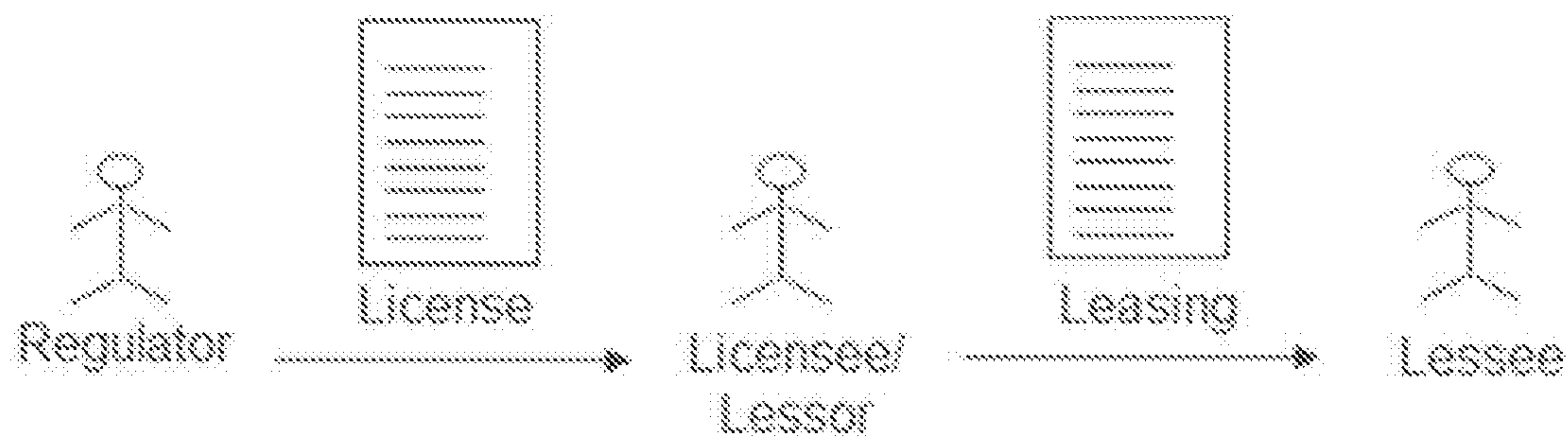


Fig. 18

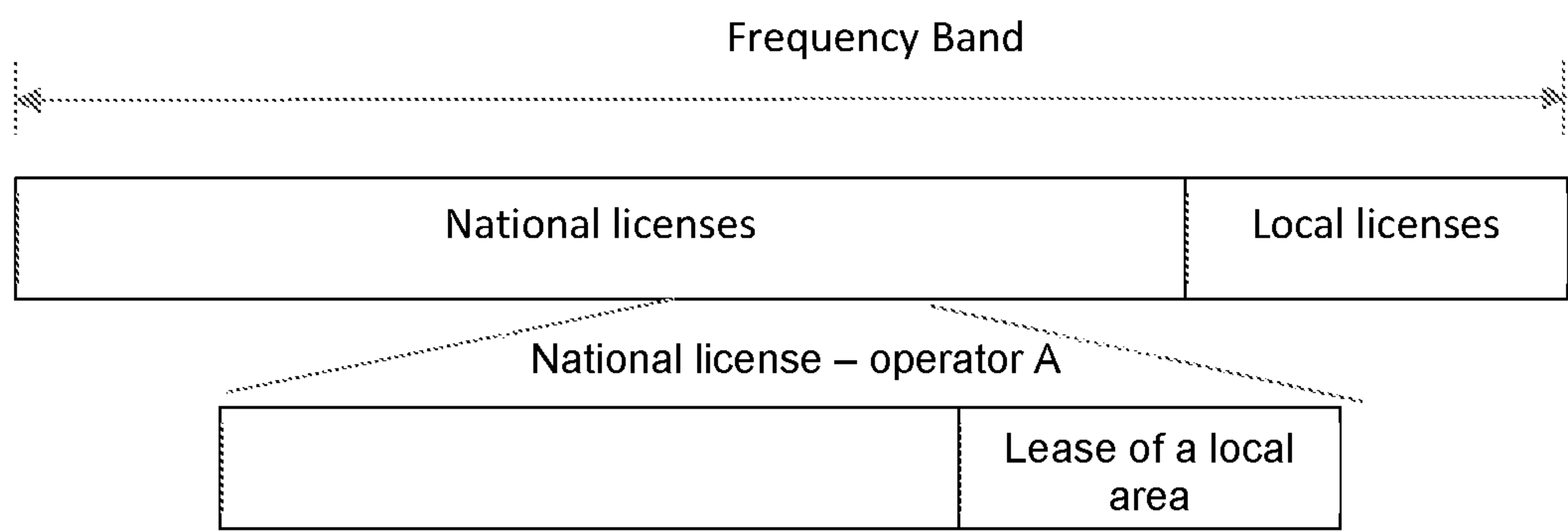
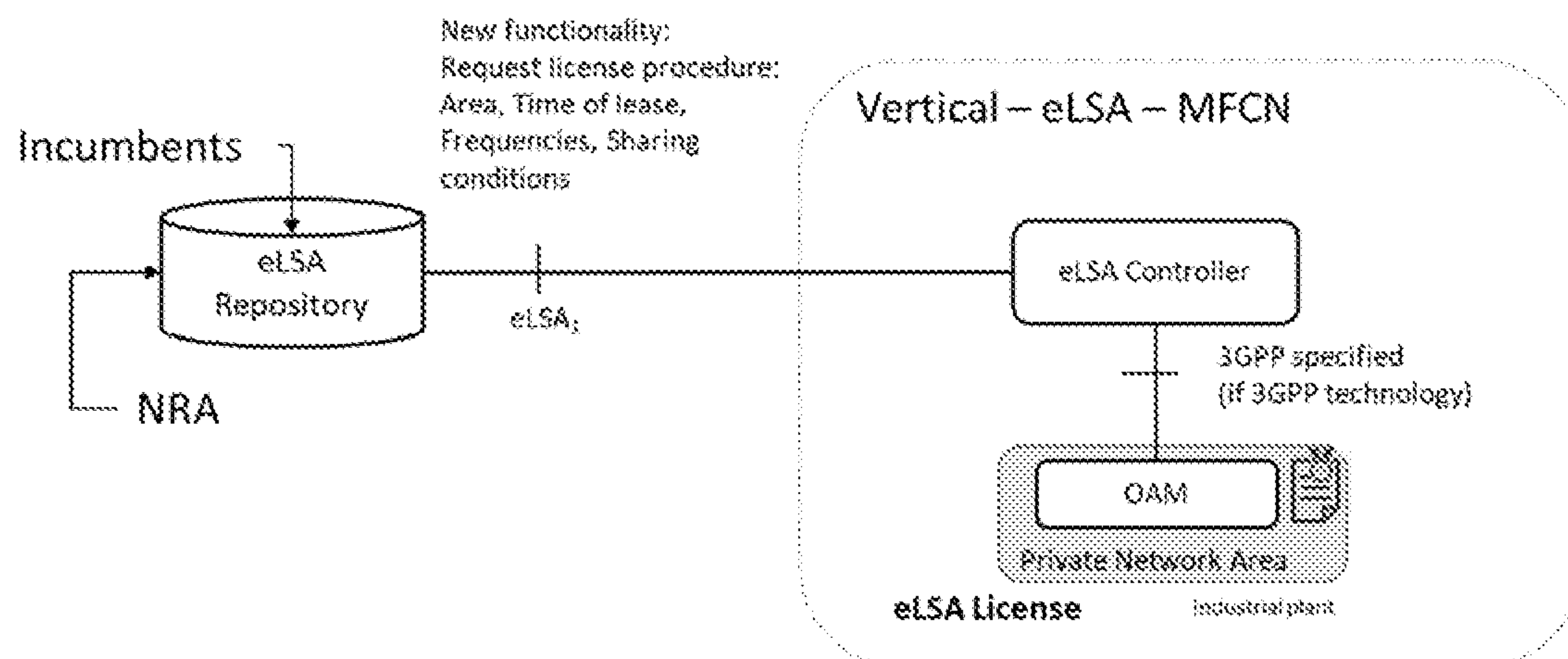
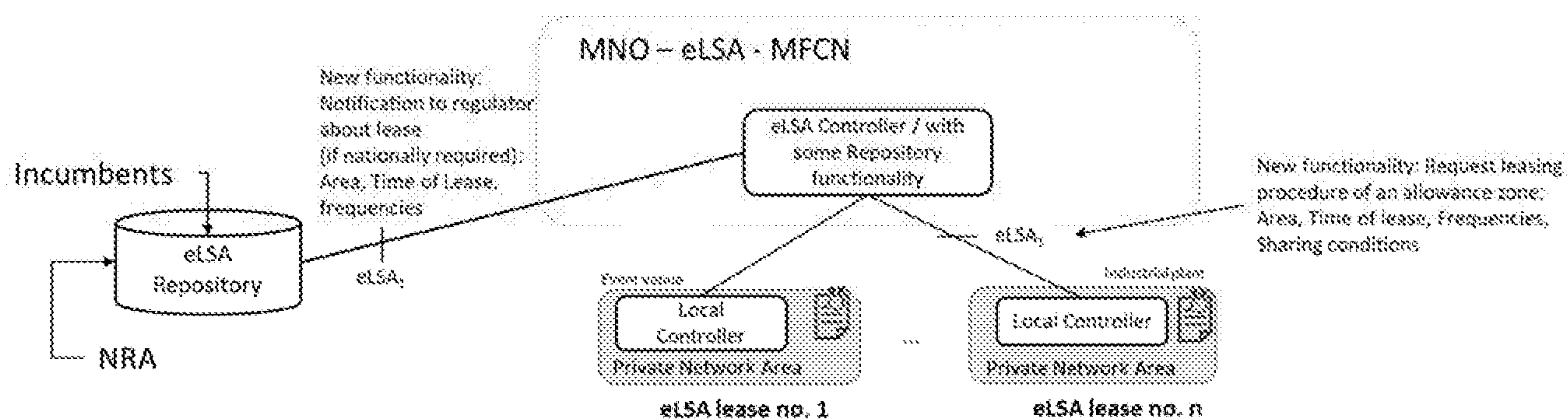


Fig. 19

**Fig. 20****Fig. 21**

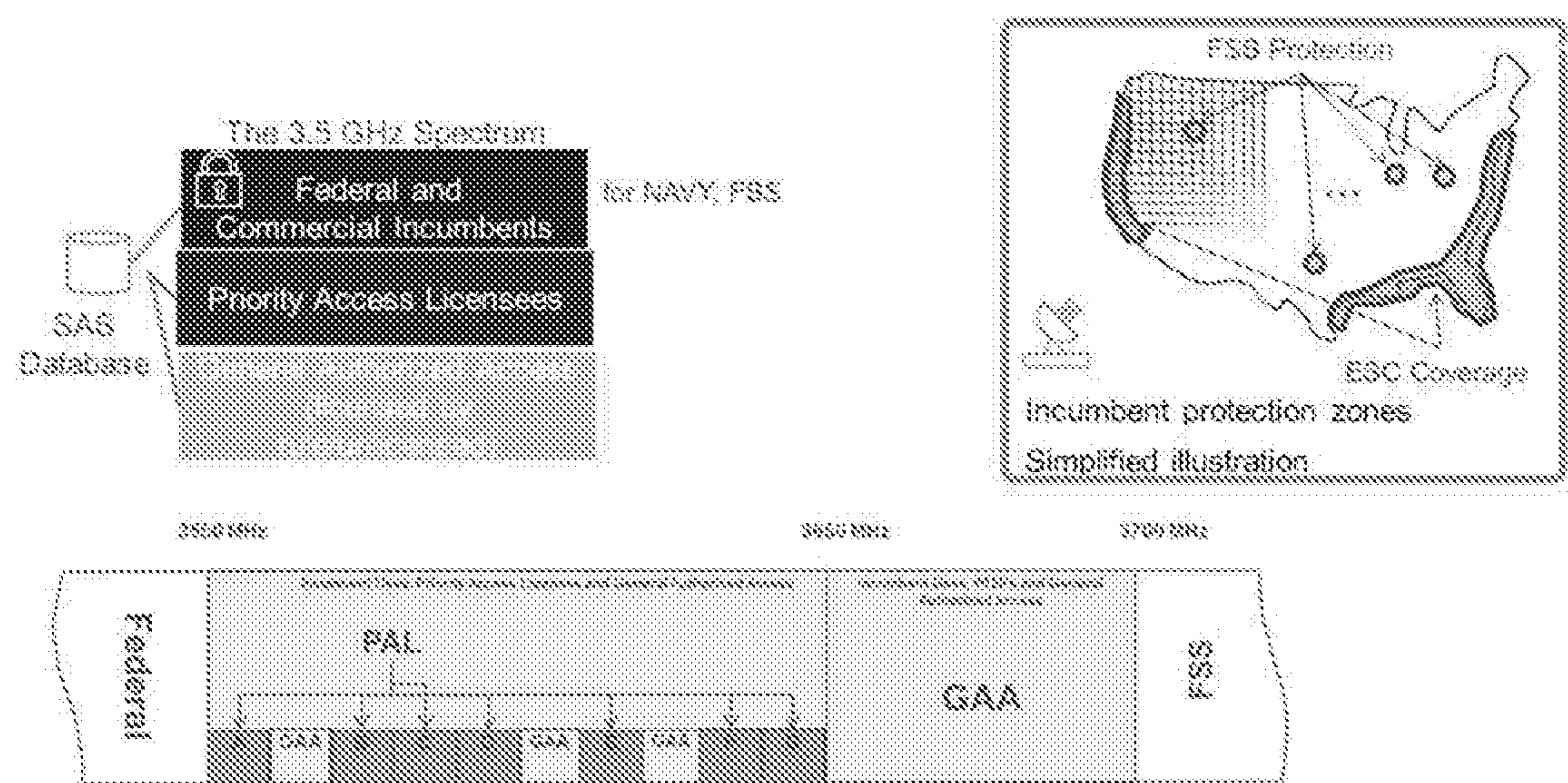


Fig. 22

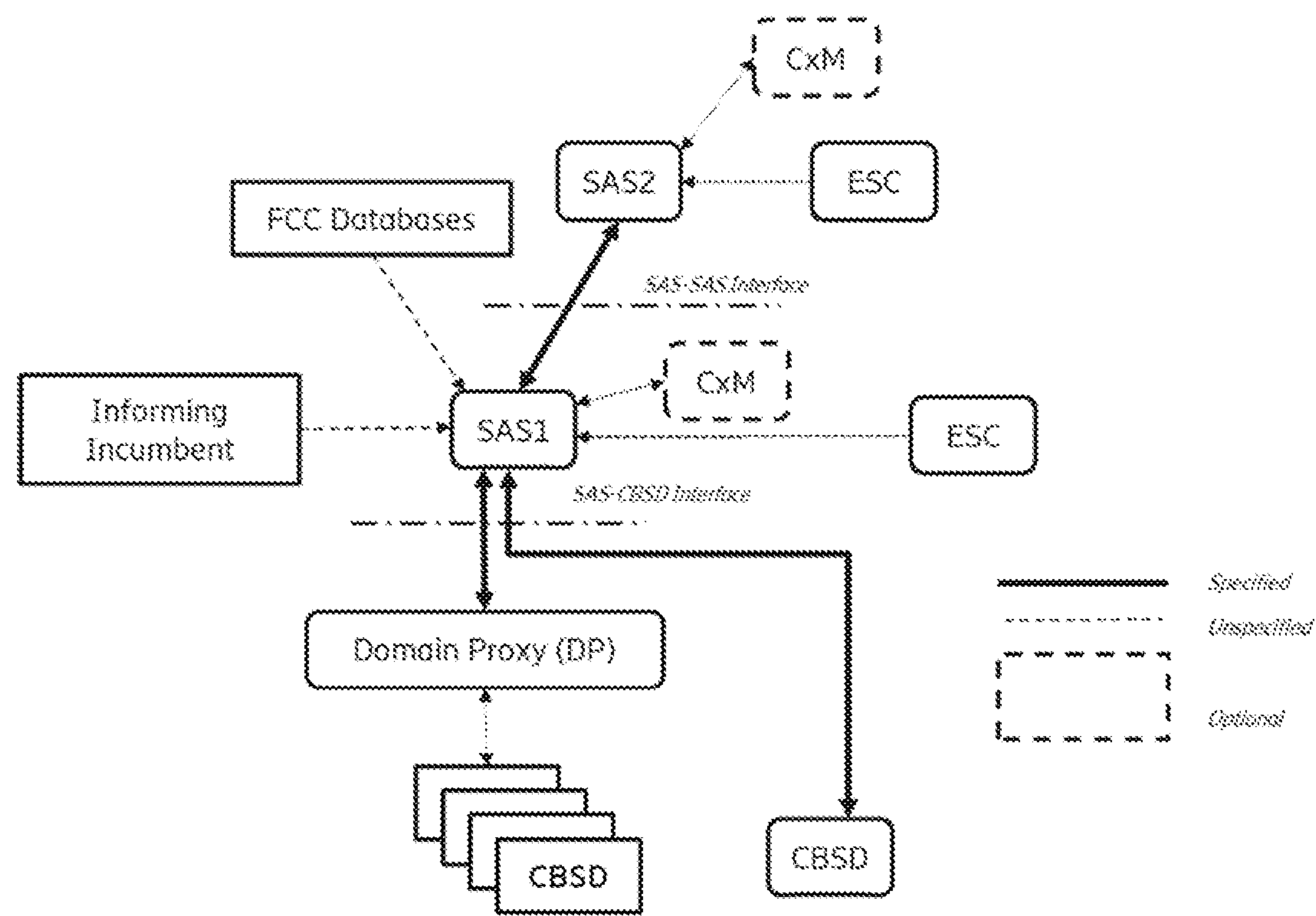
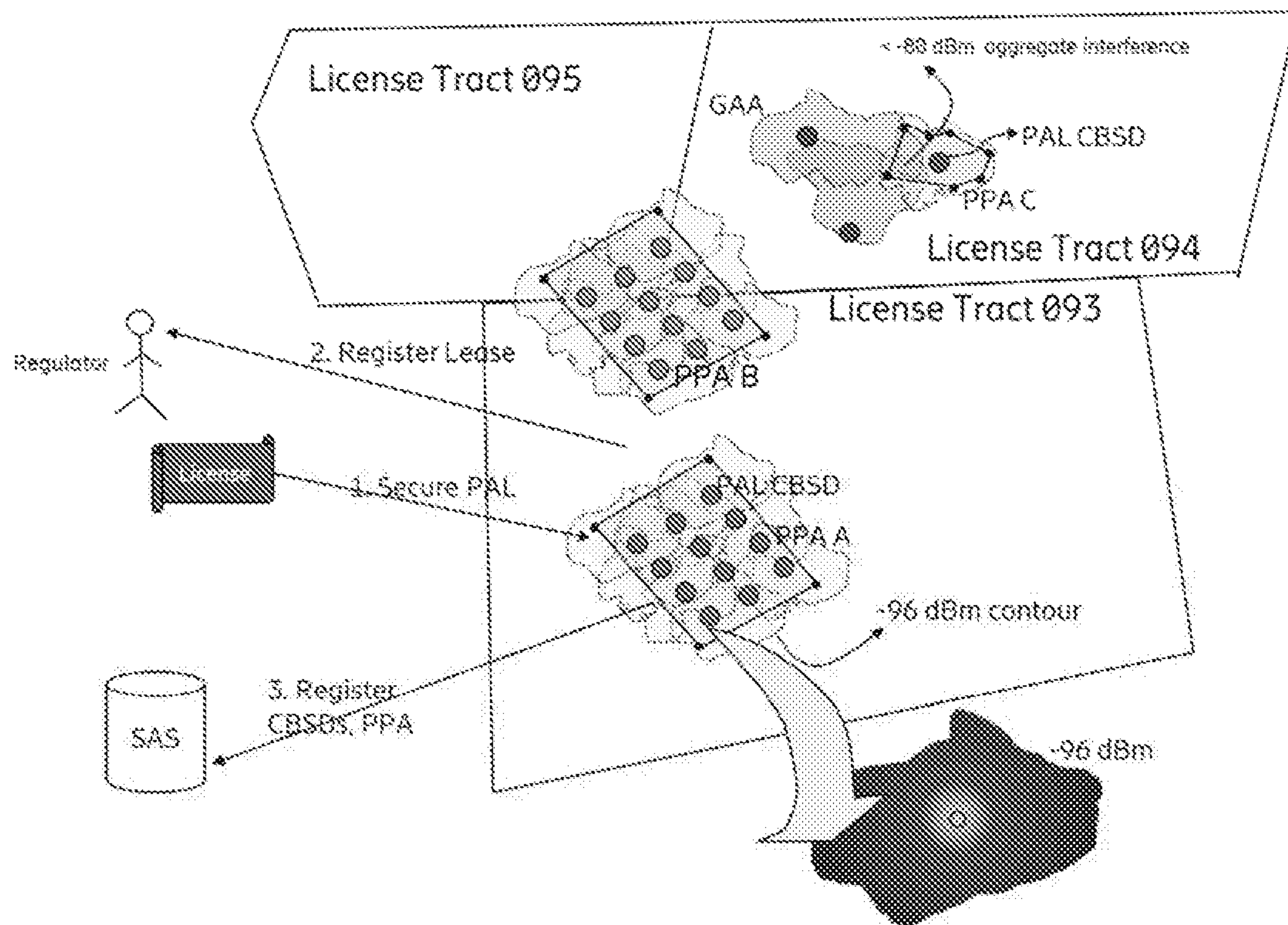


Fig. 23

**Fig. 24**

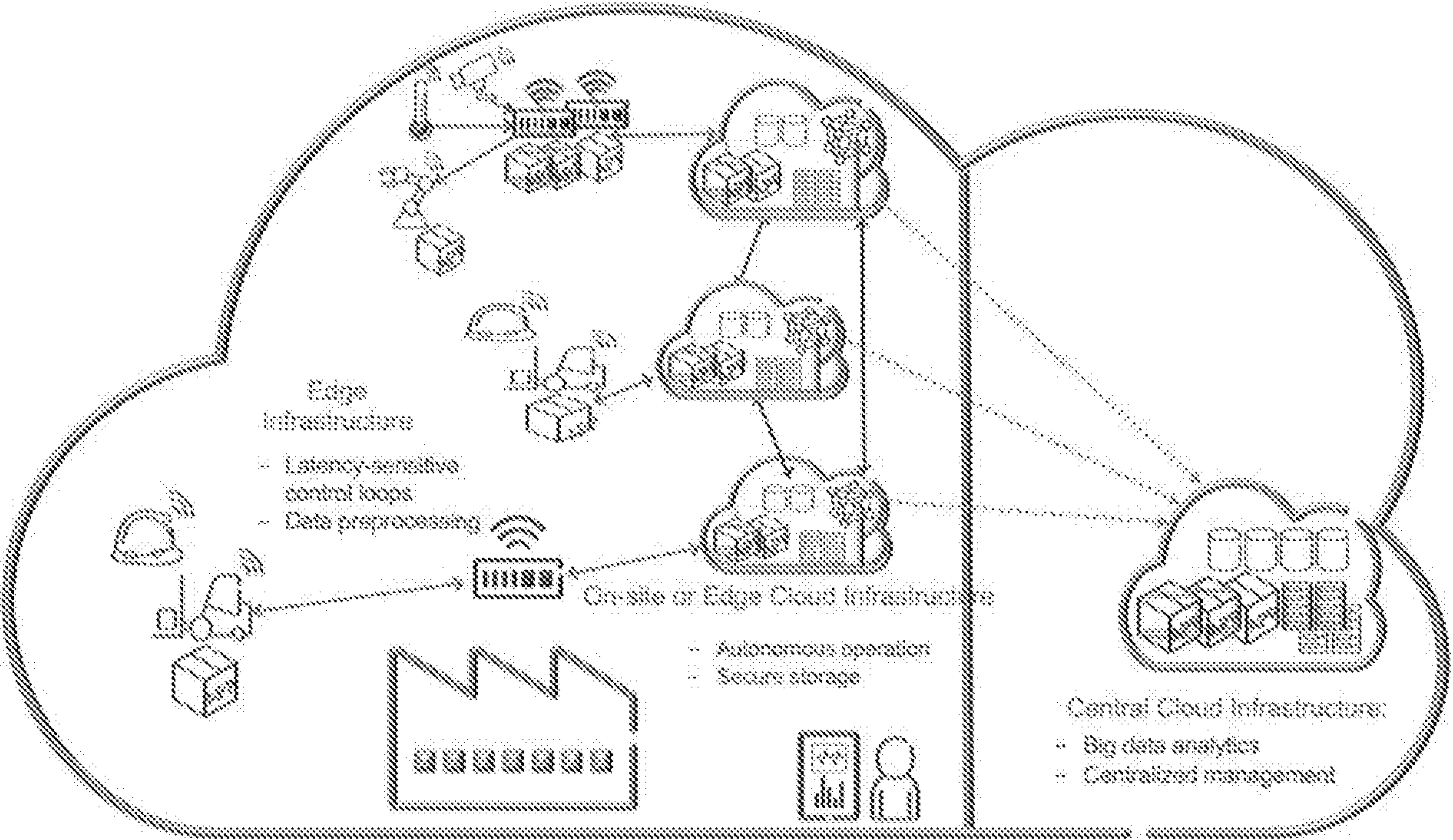


Fig. 25

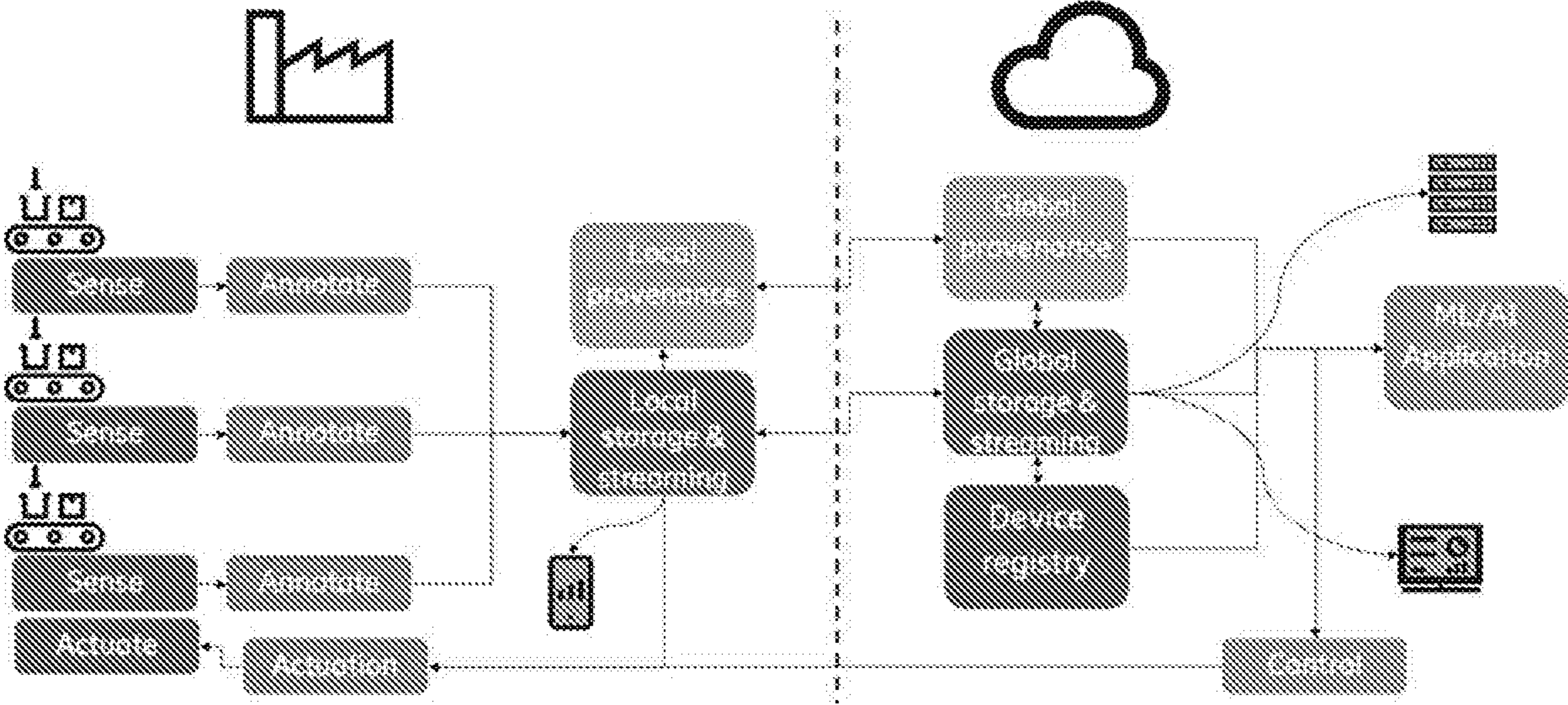


Fig. 26

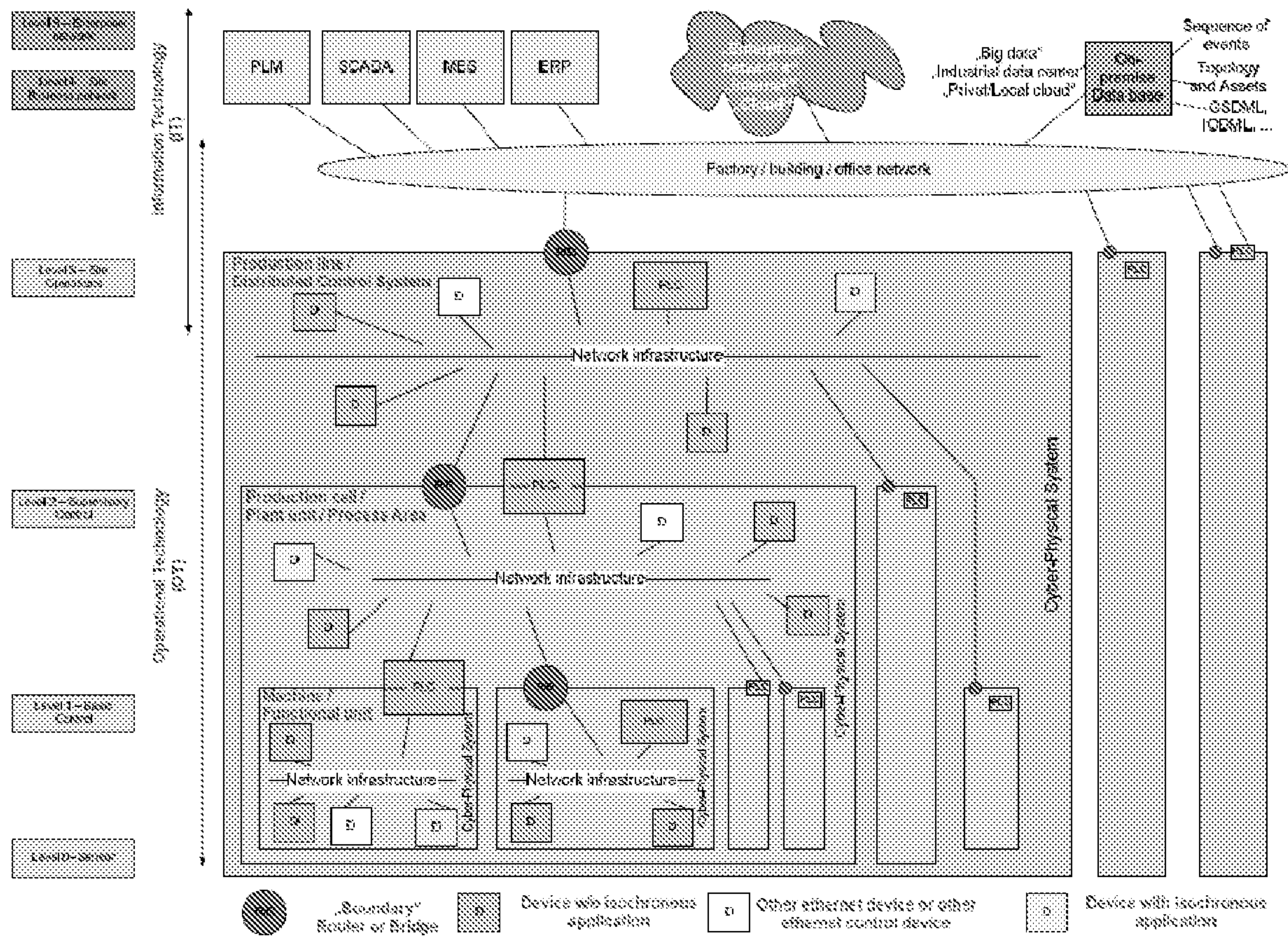


Fig. 27

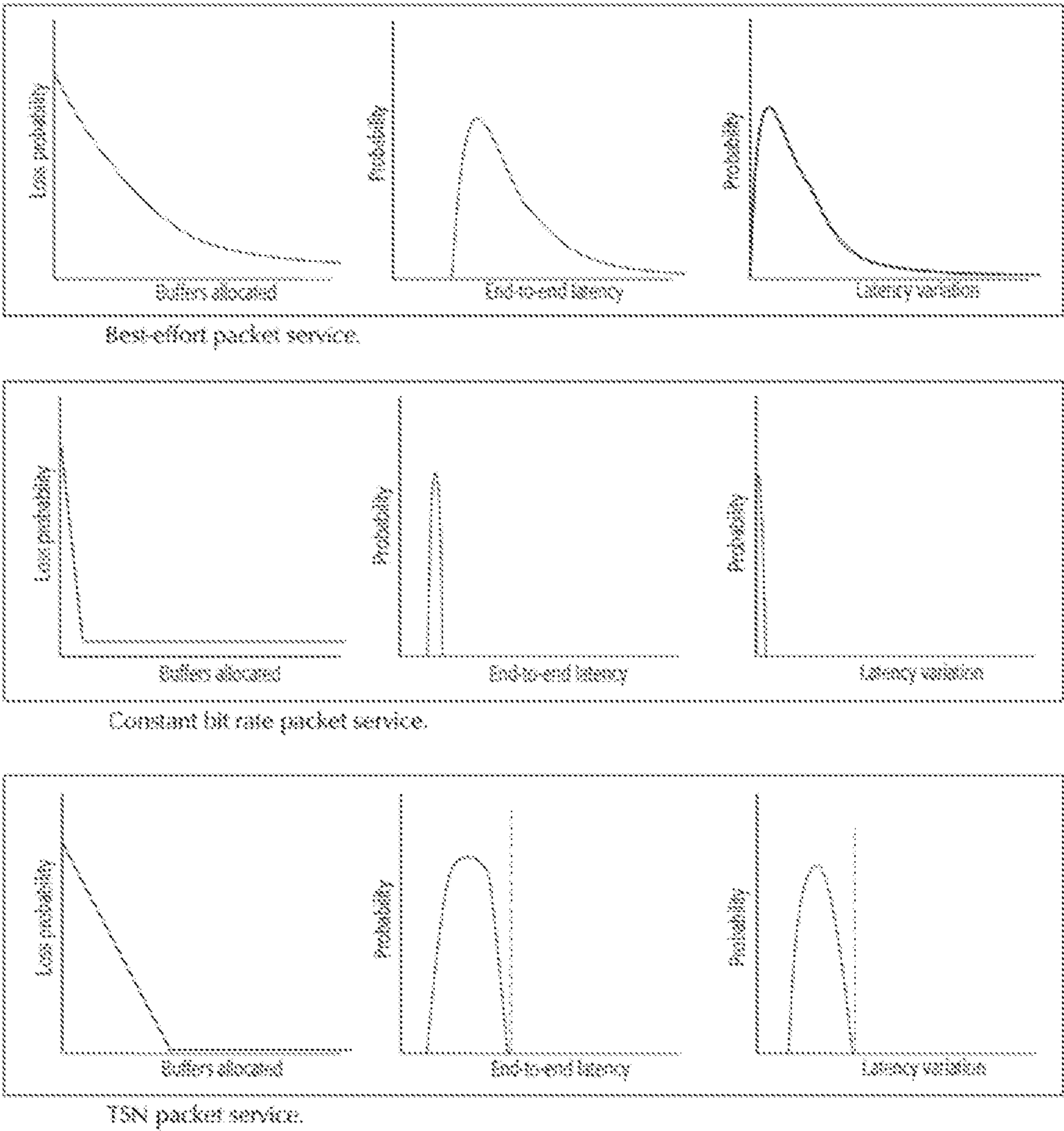


Fig. 28

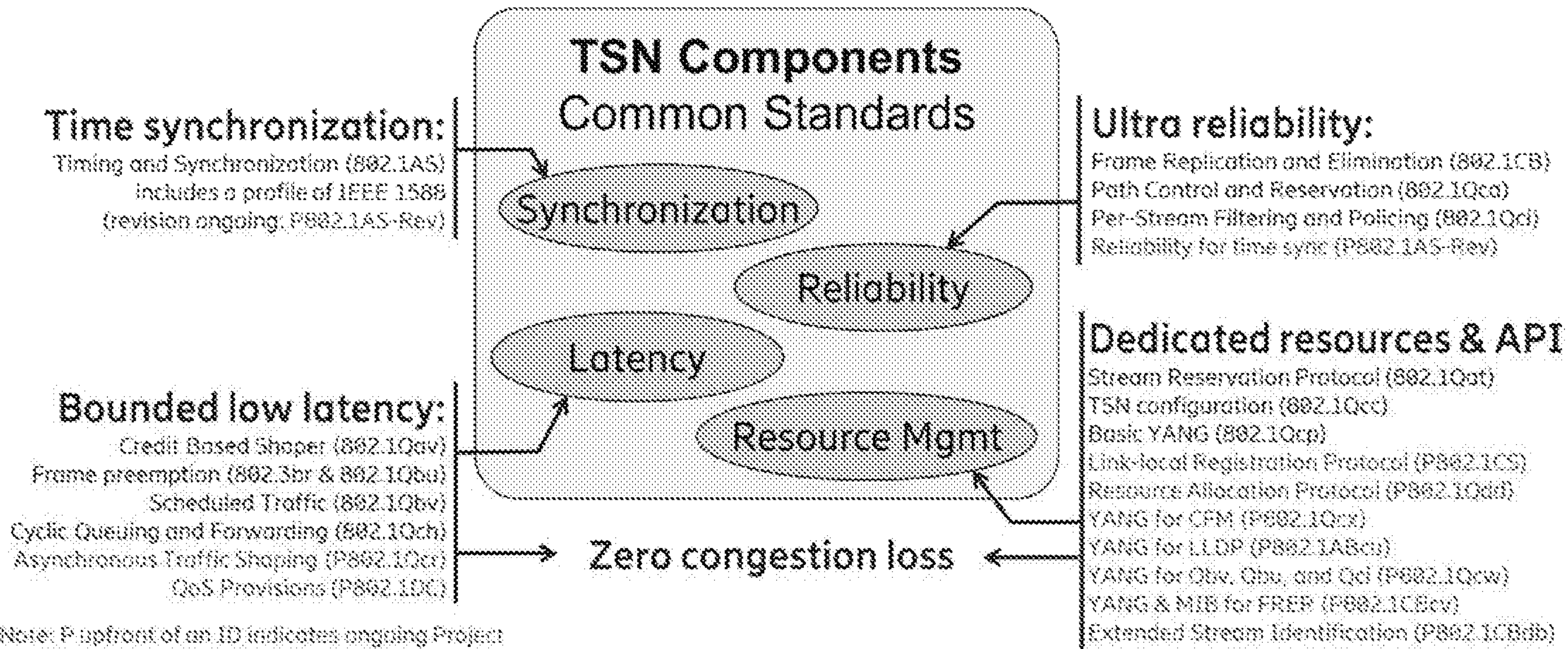


Fig. 29

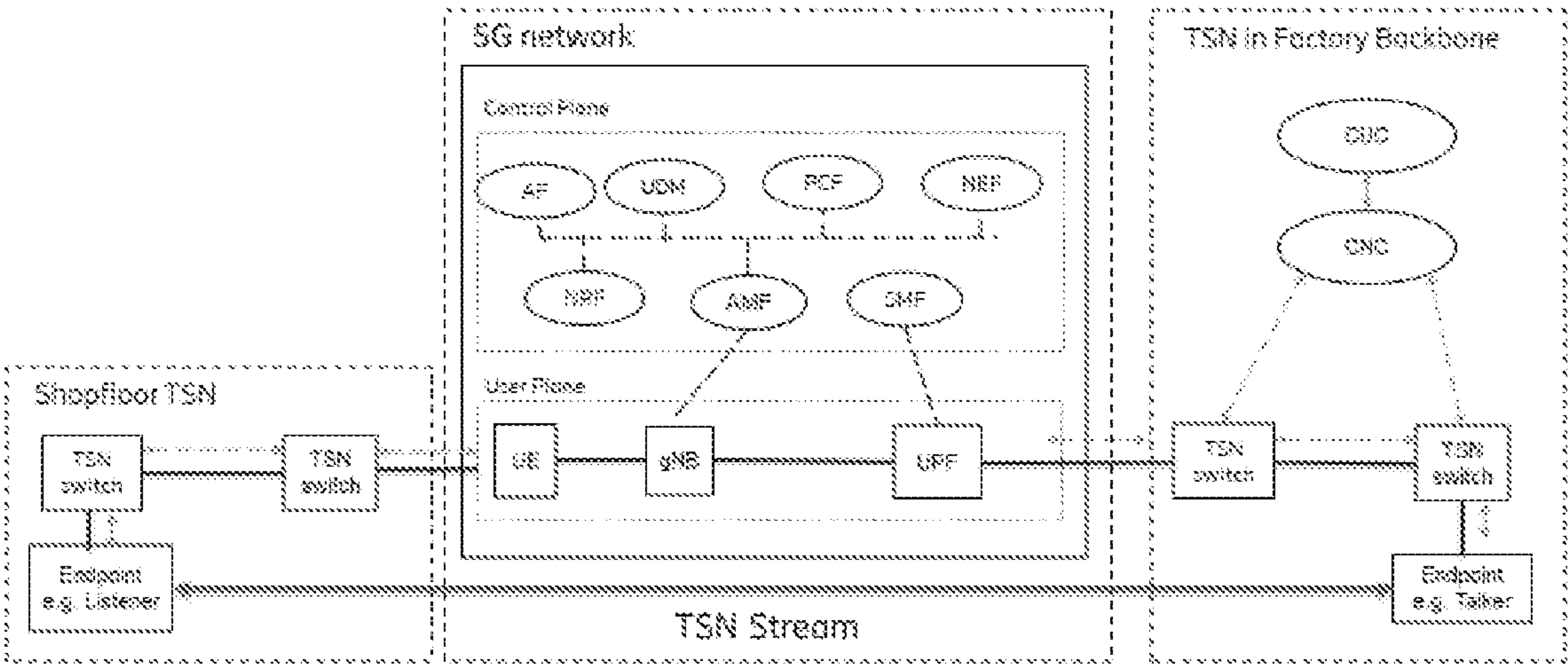


Fig. 30

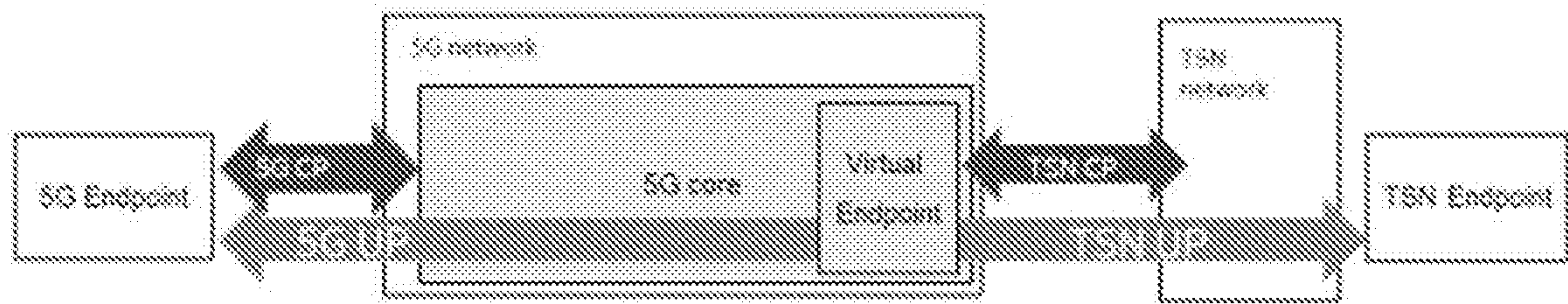


Fig. 31

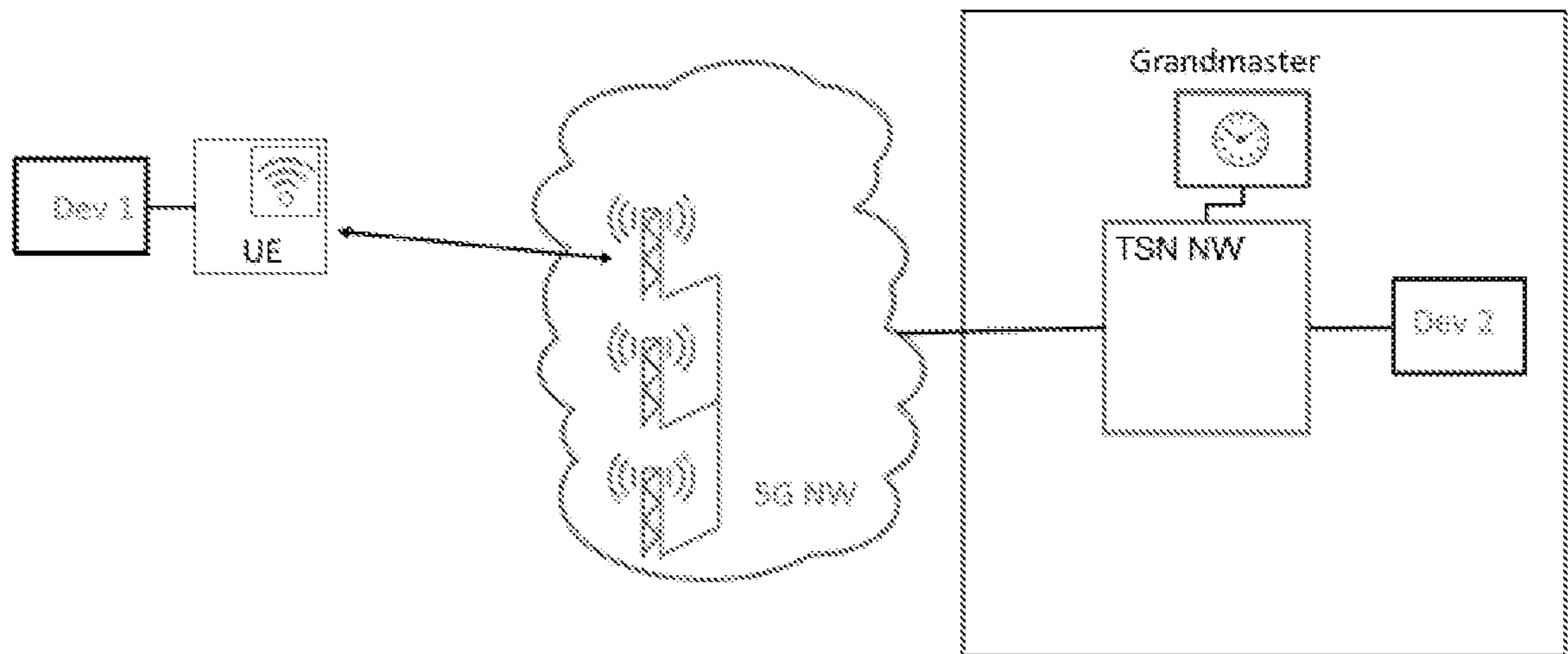


Fig. 32

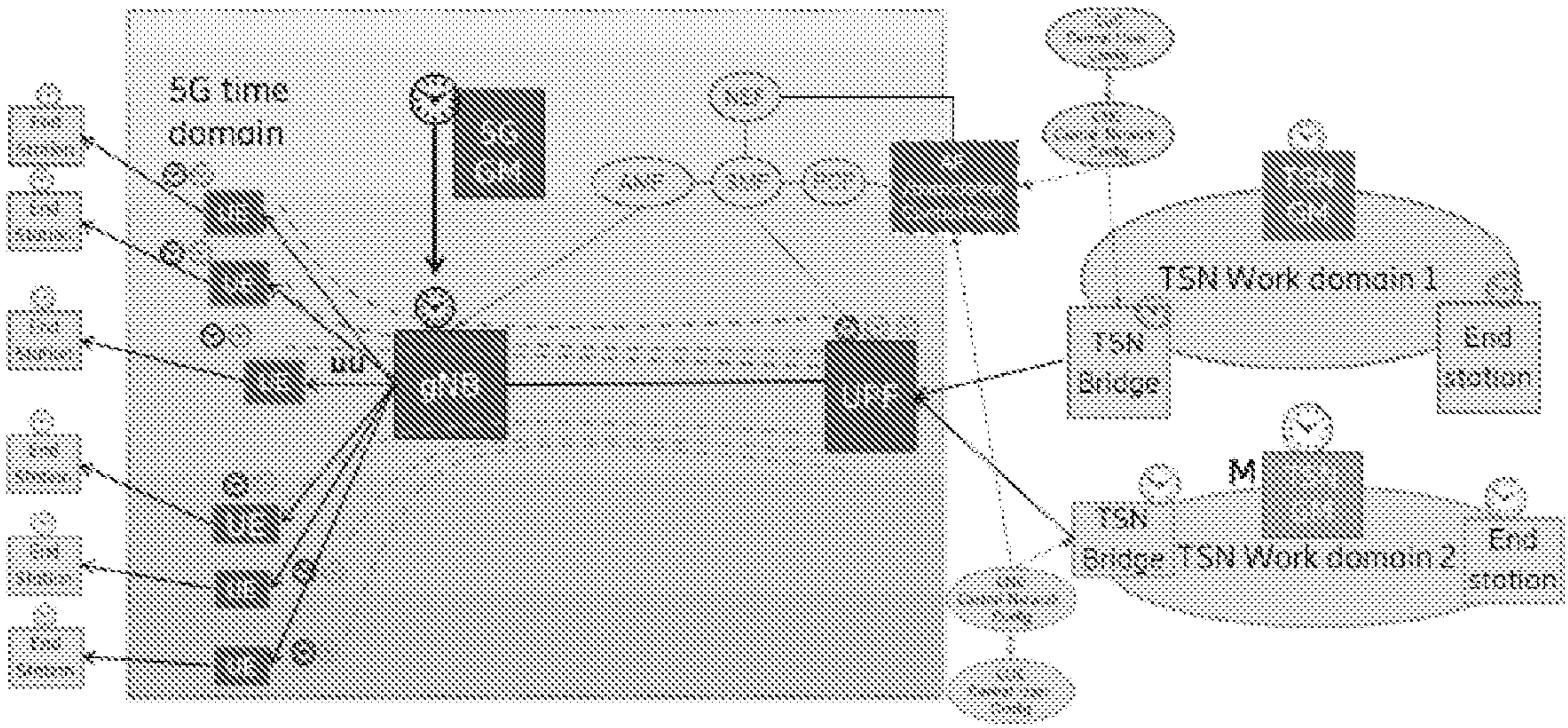


Fig. 33

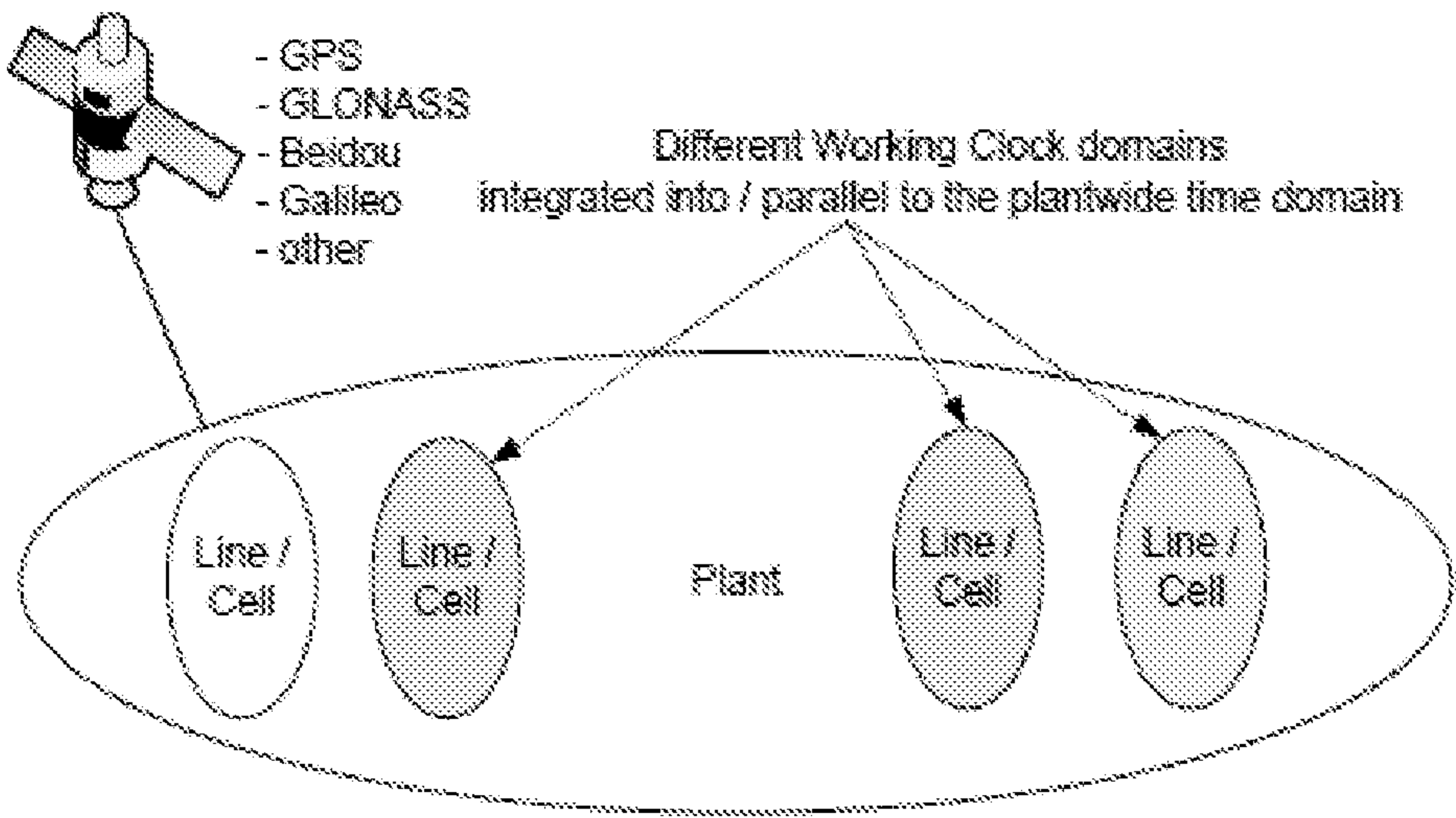


Fig. 34

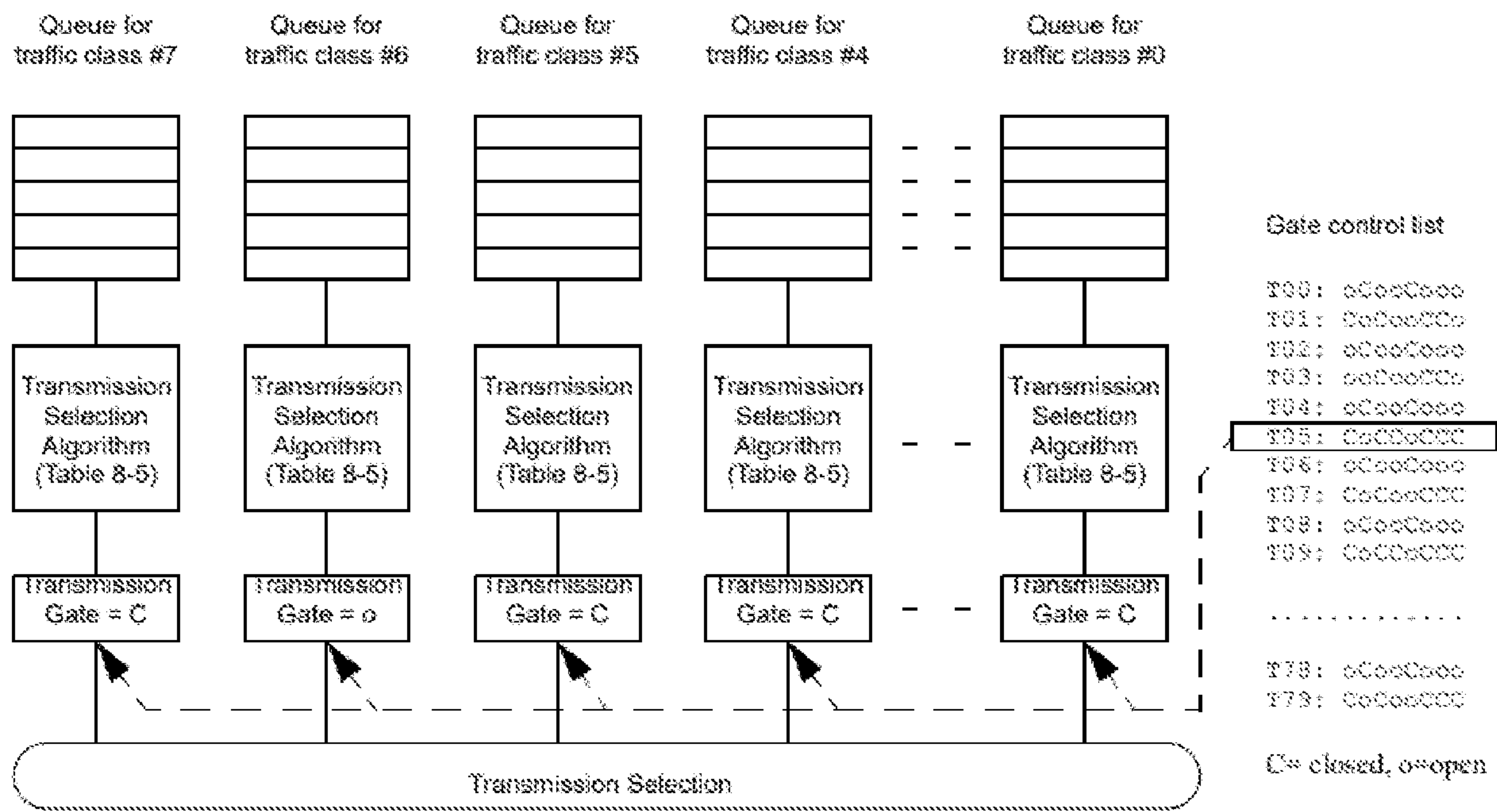


Fig. 35

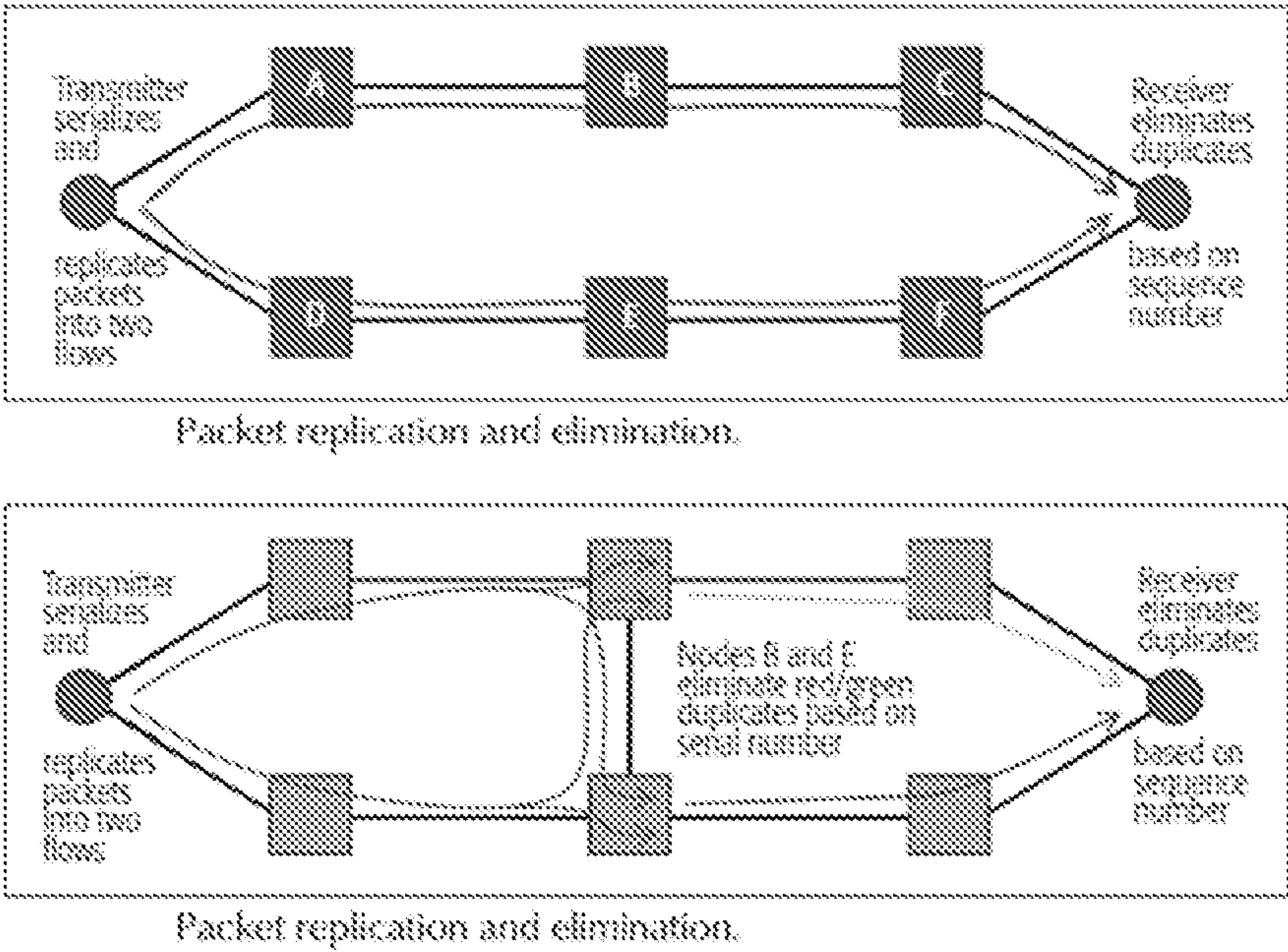


Fig. 36

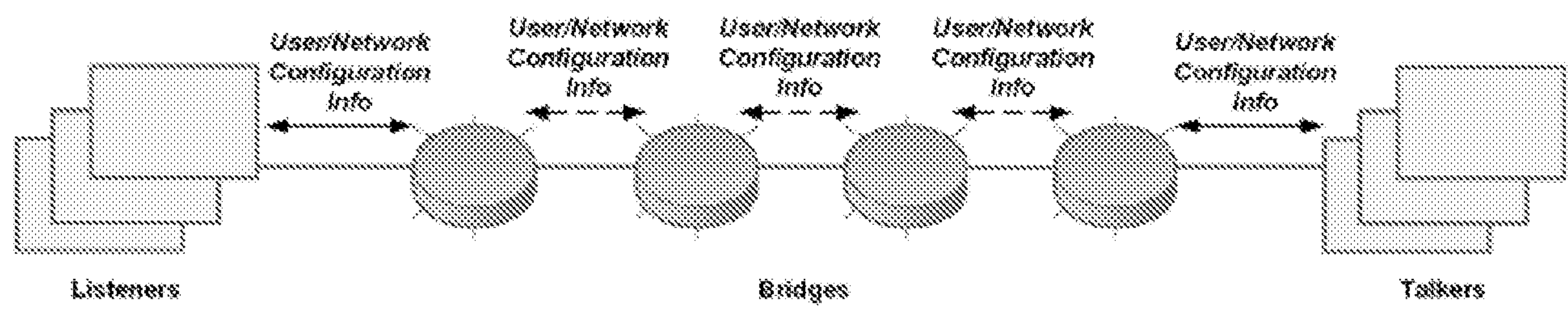


Fig. 37

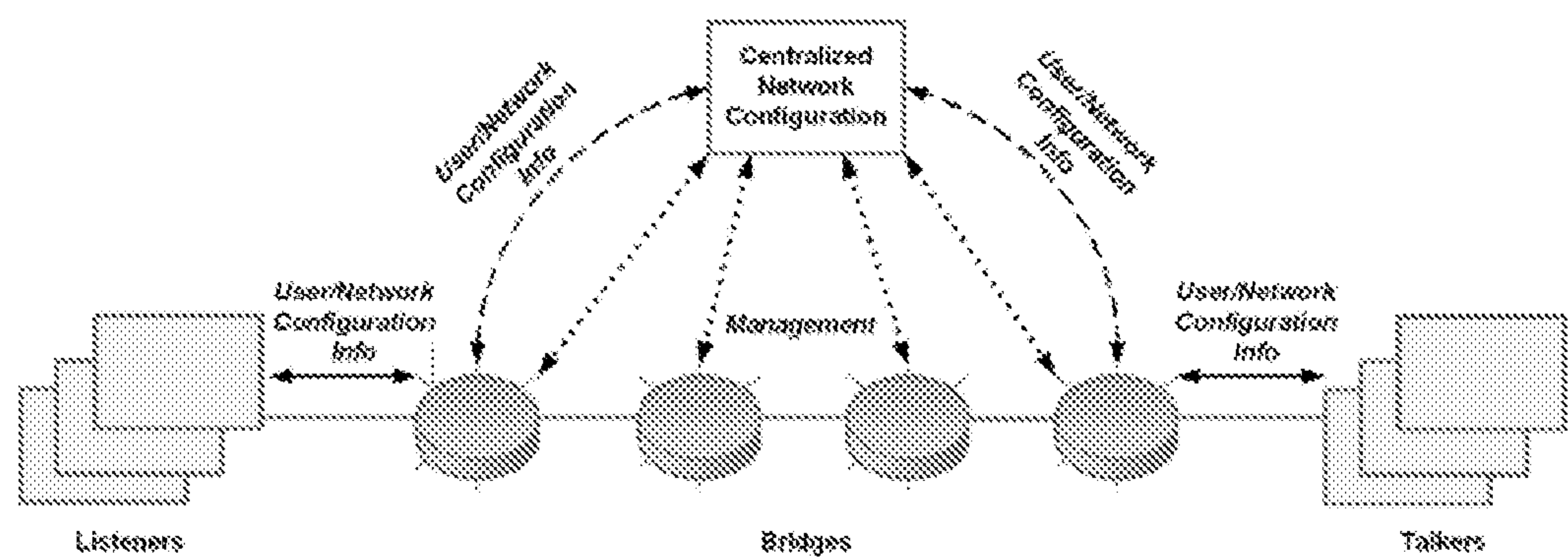


Fig. 38

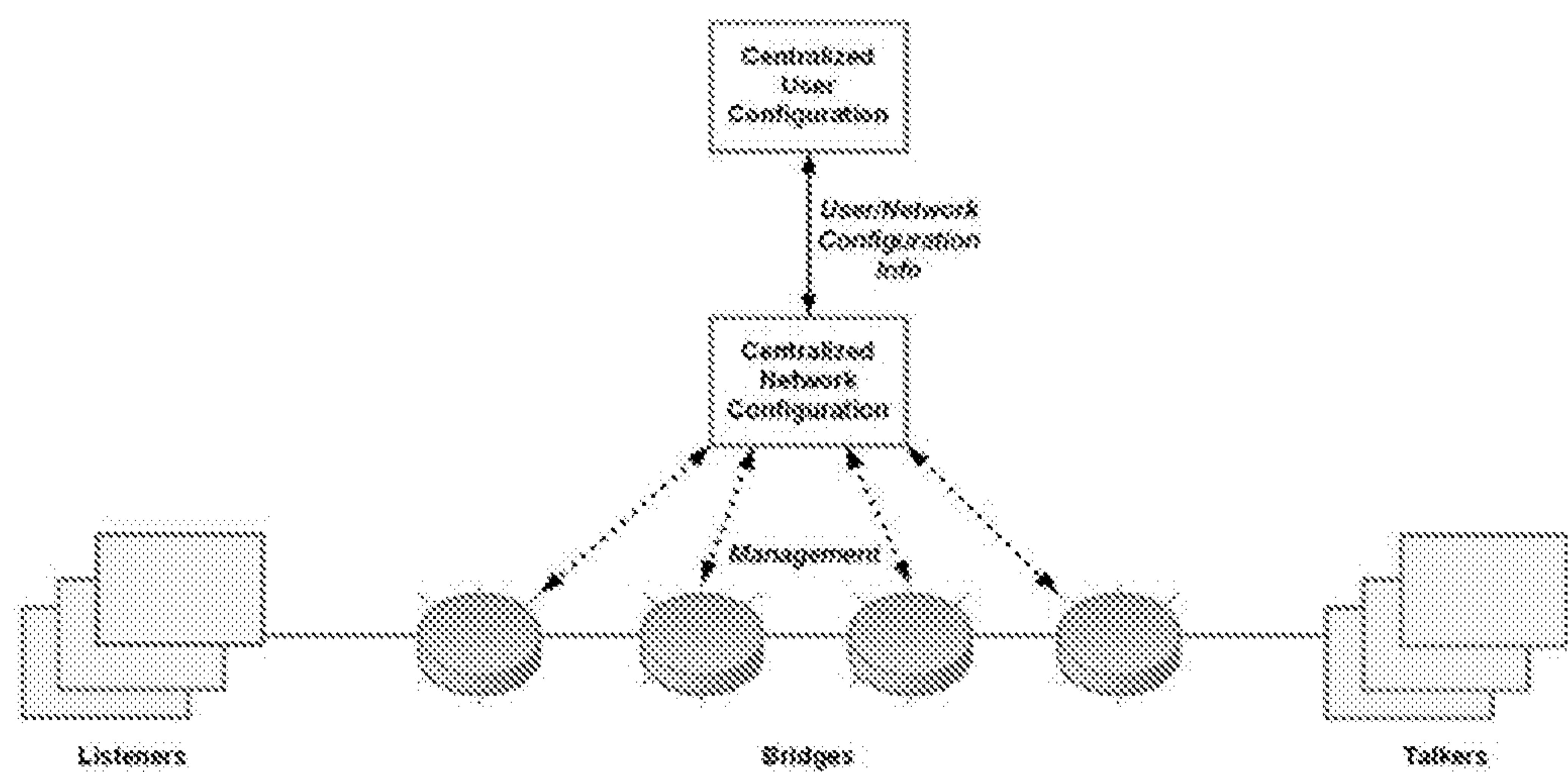


Fig. 39

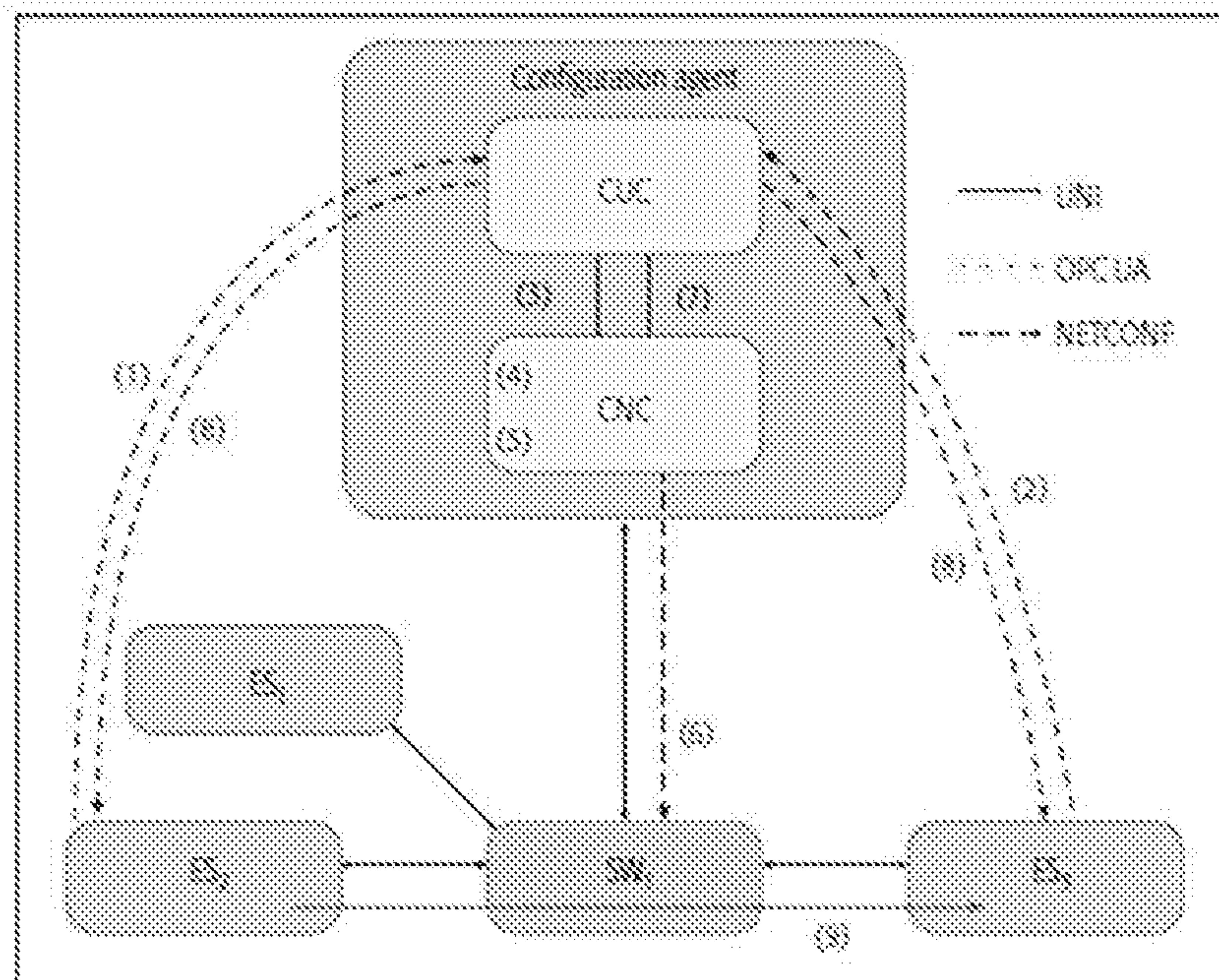


Fig. 40

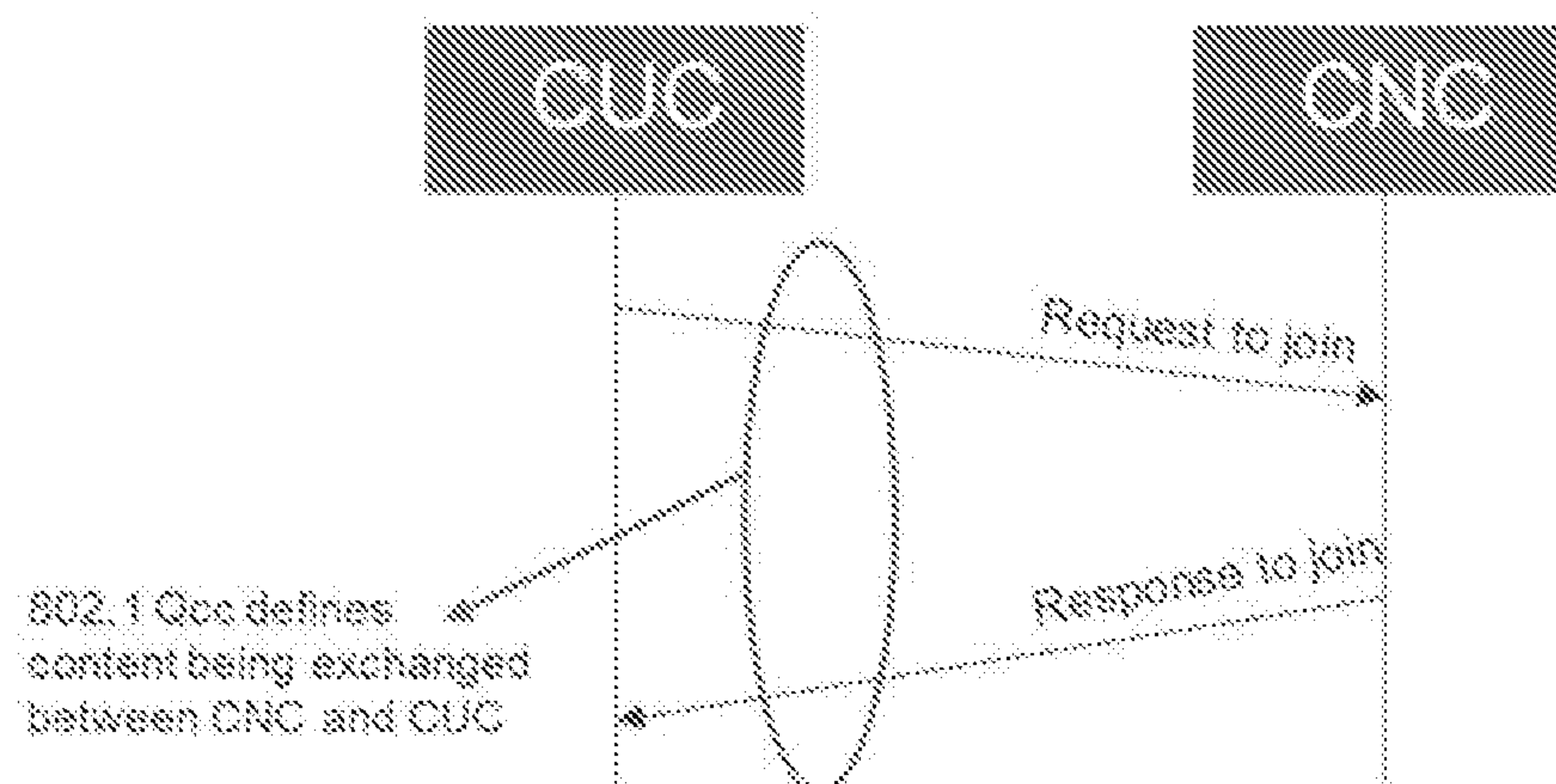


Fig. 41

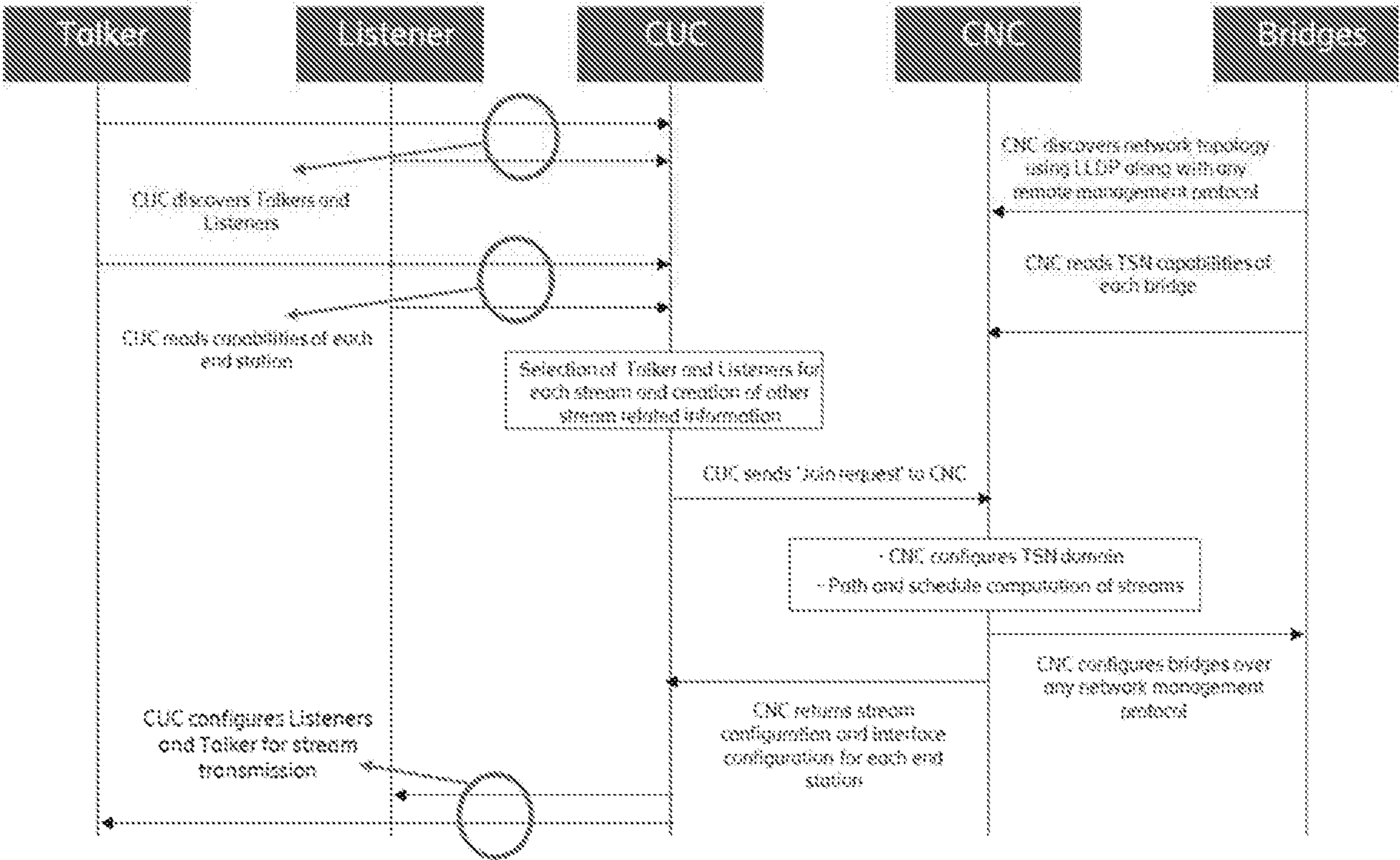


Fig. 42

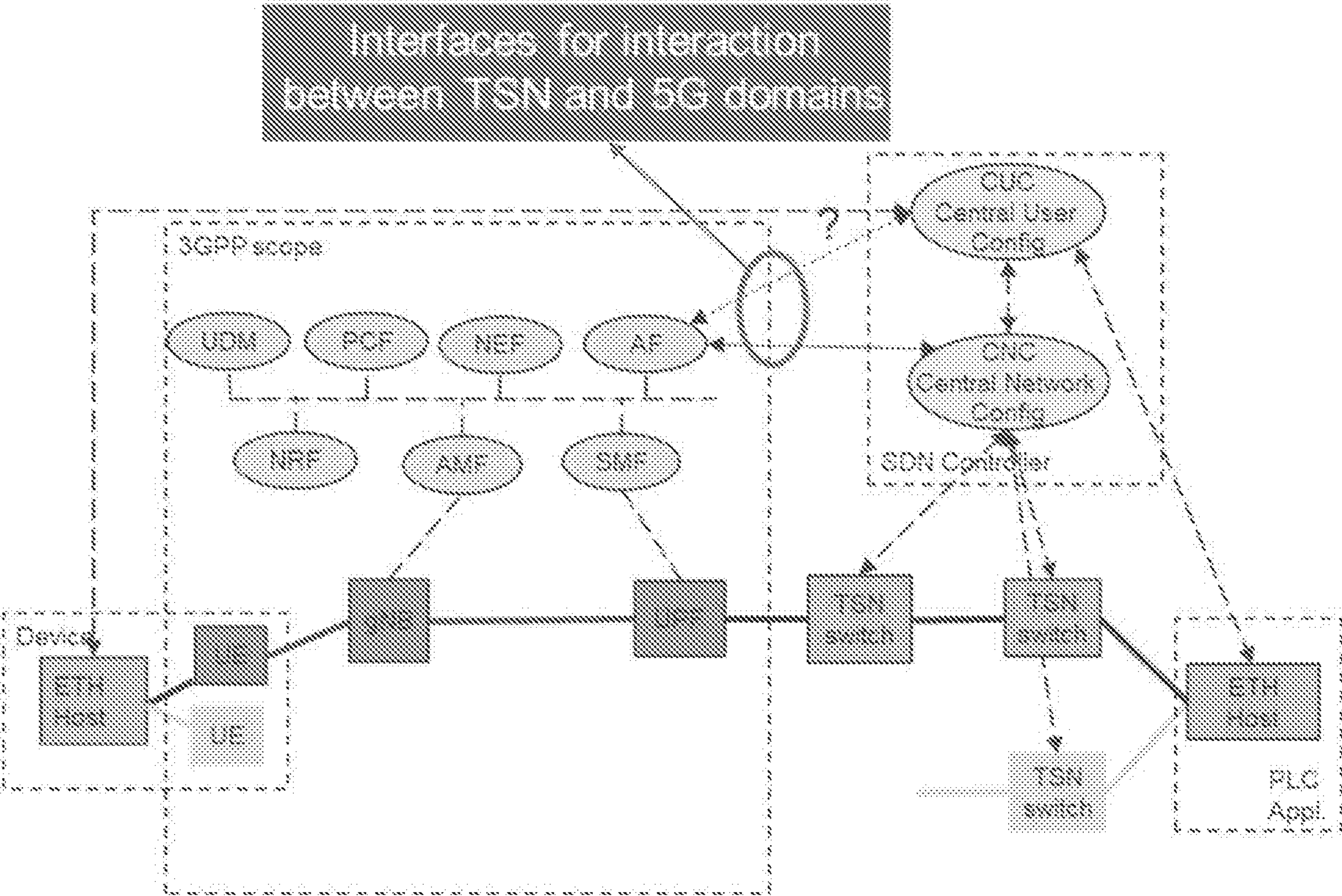


Fig. 43

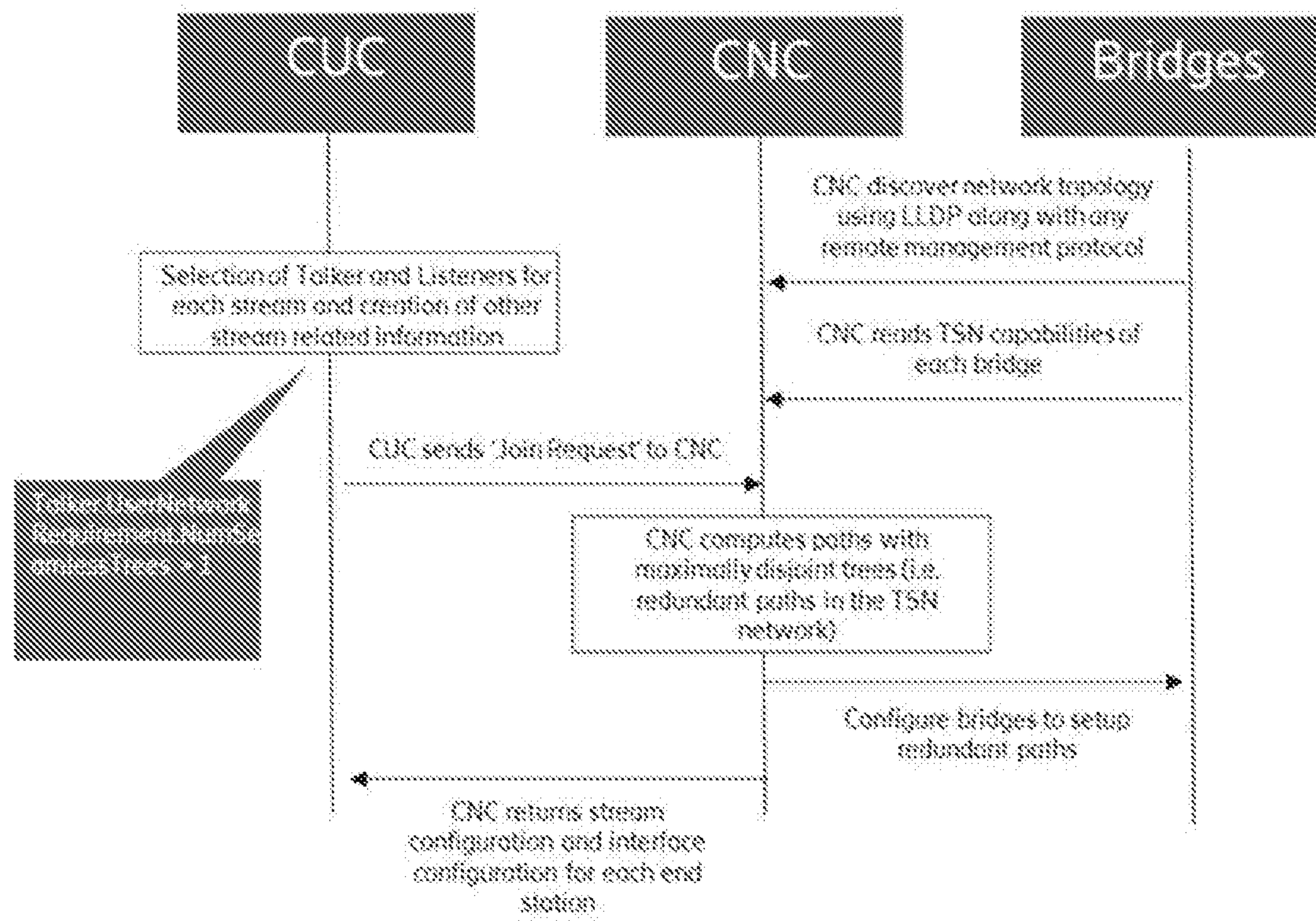


Fig. 44

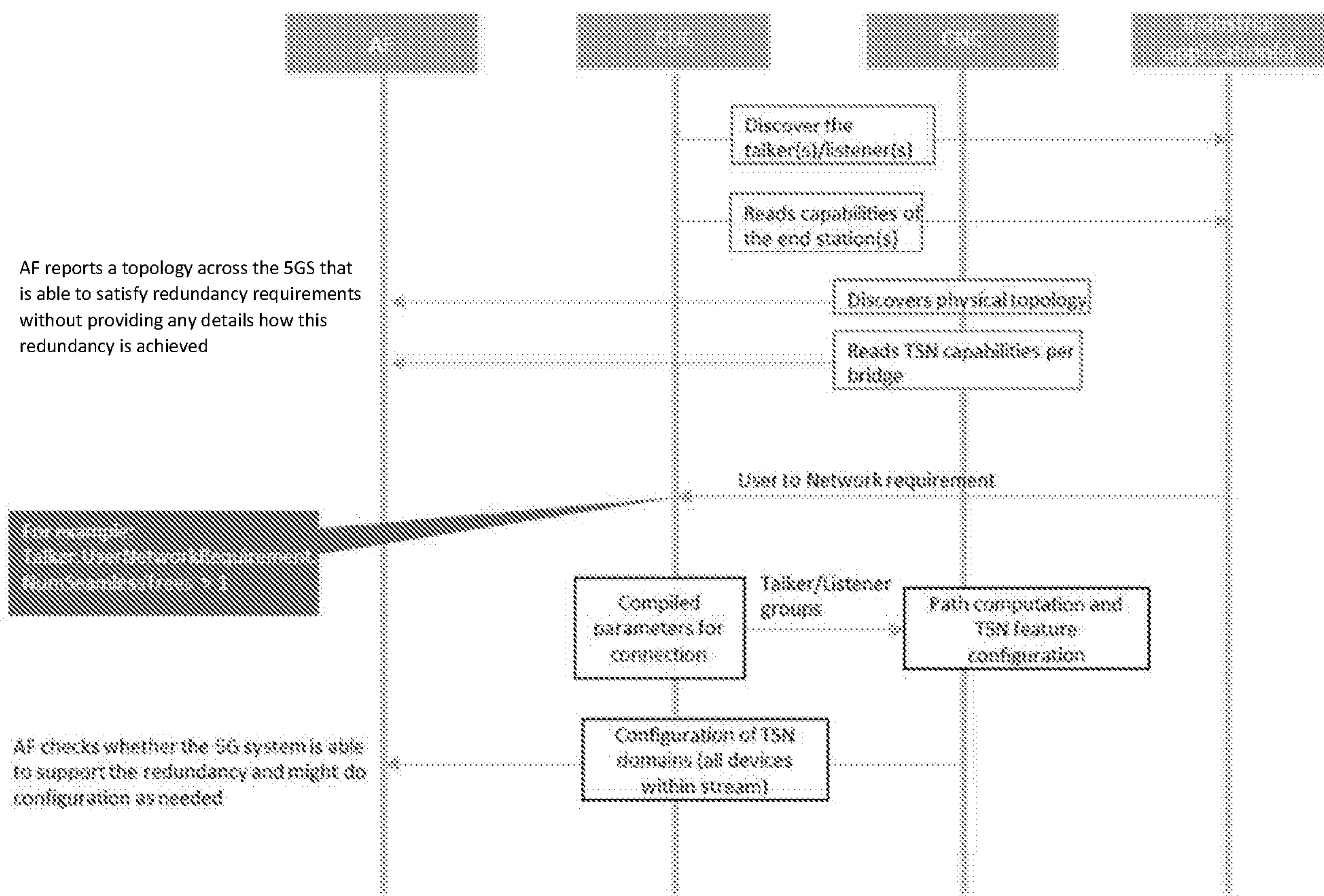


Fig. 45

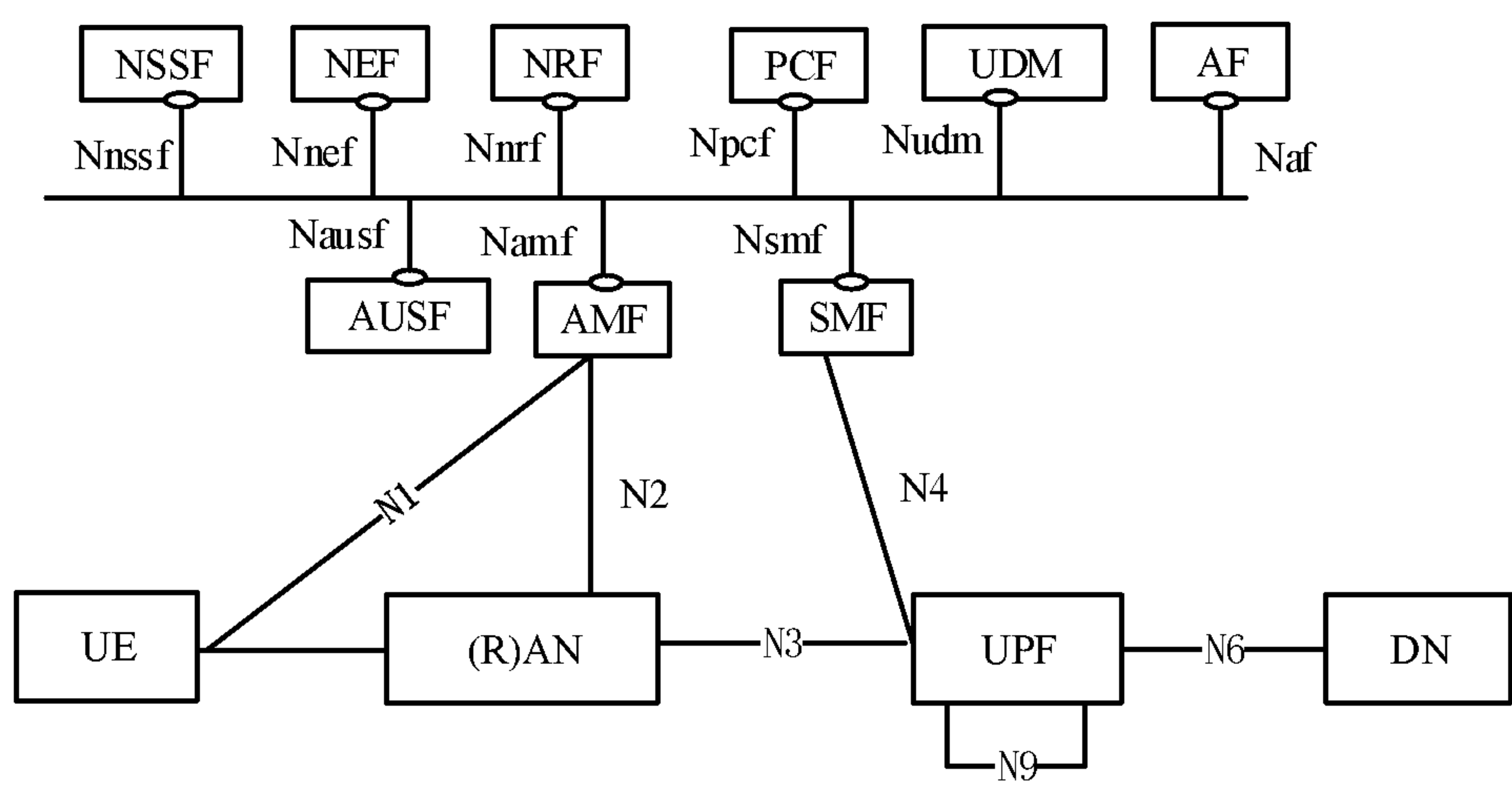


Fig. 46

CHAIN CONTROLLER CONCEPT

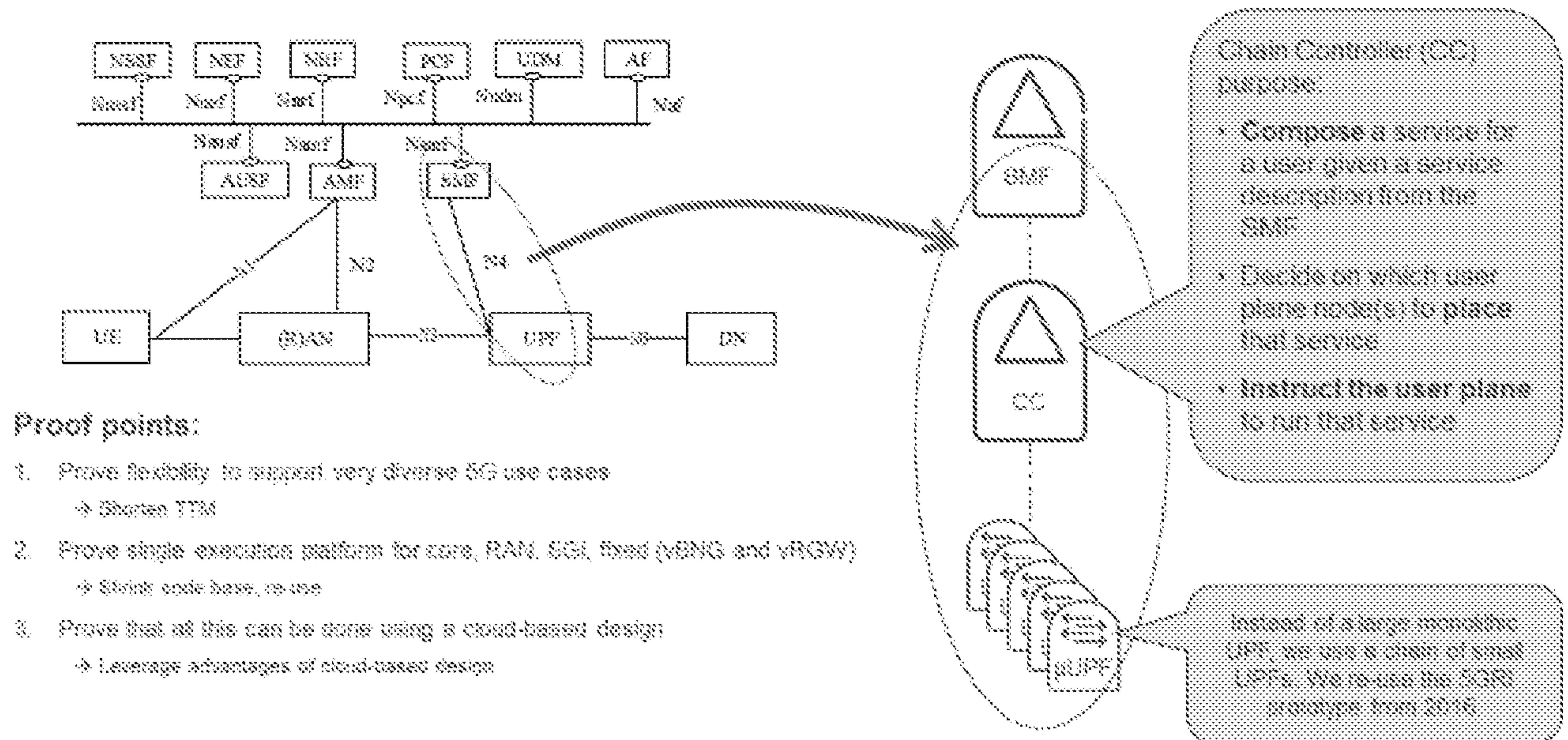


Fig. 47

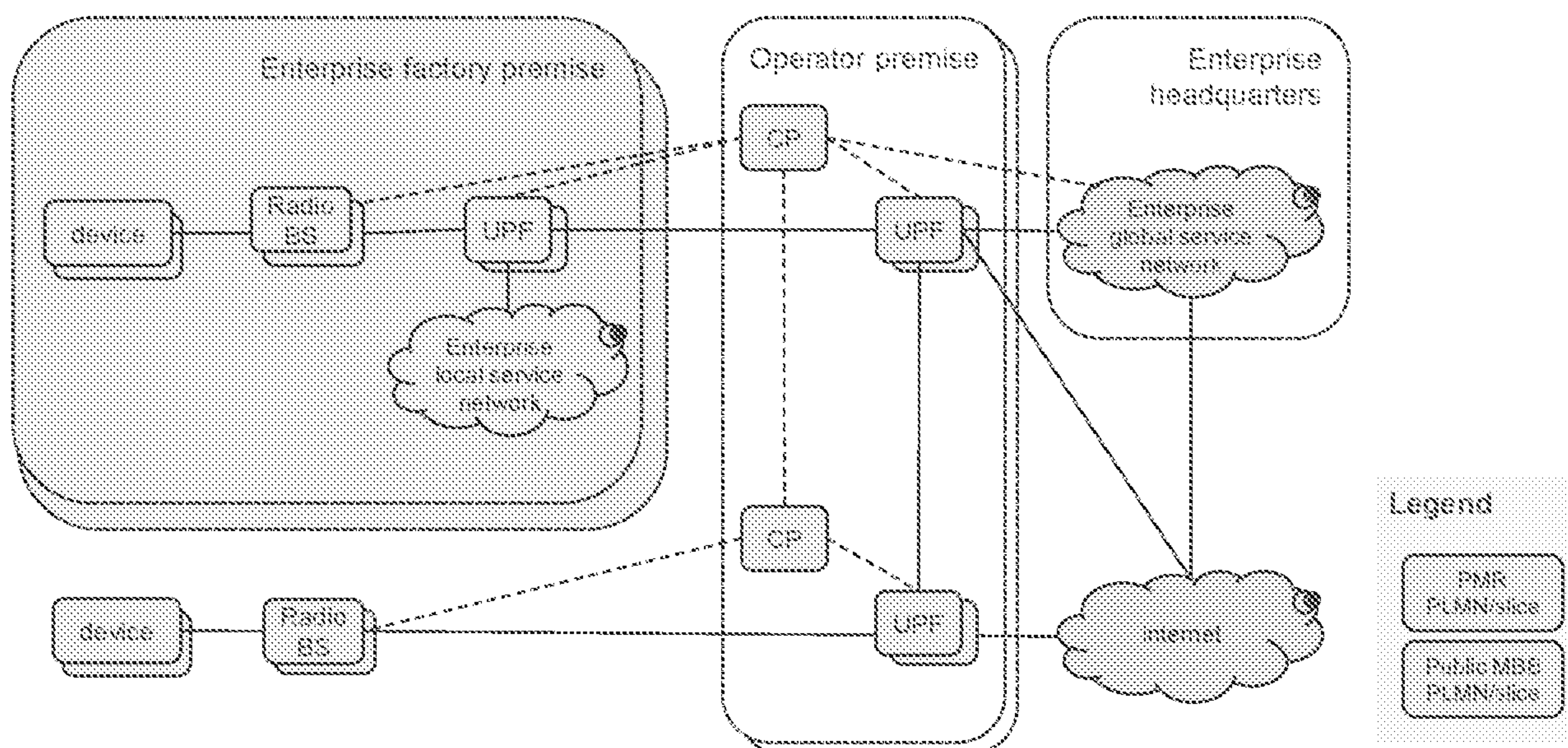


Fig. 48

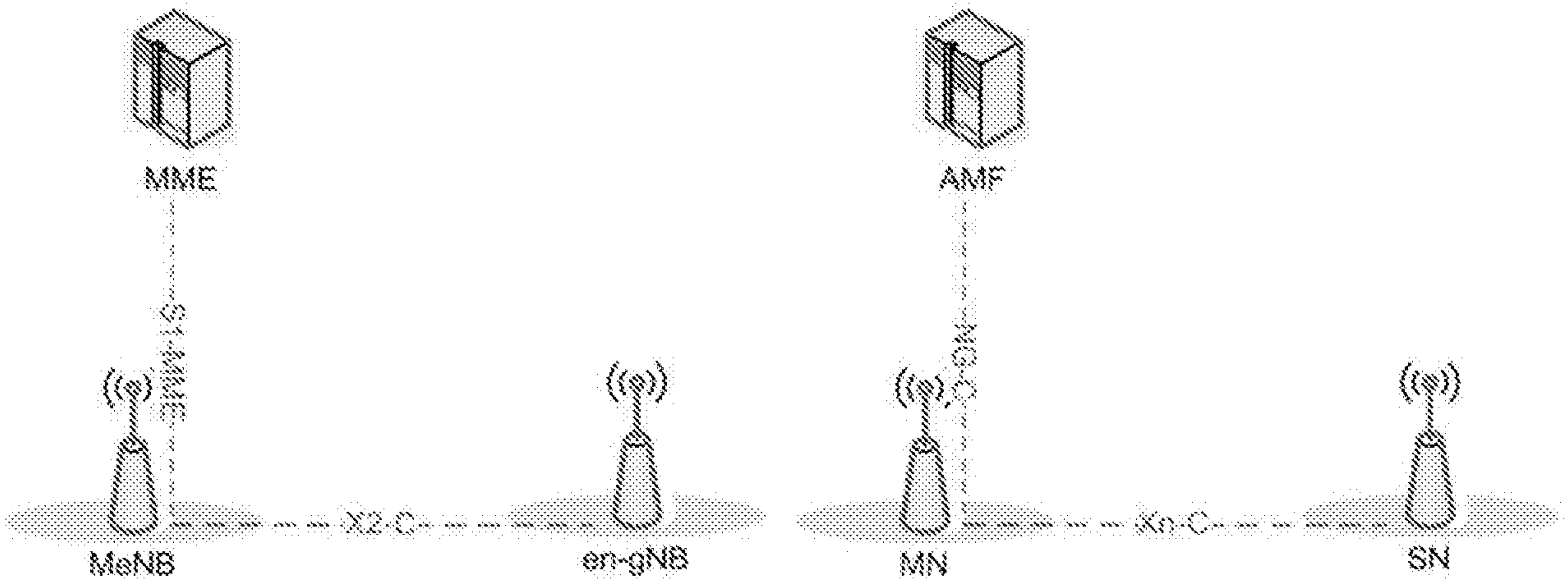


Fig. 49

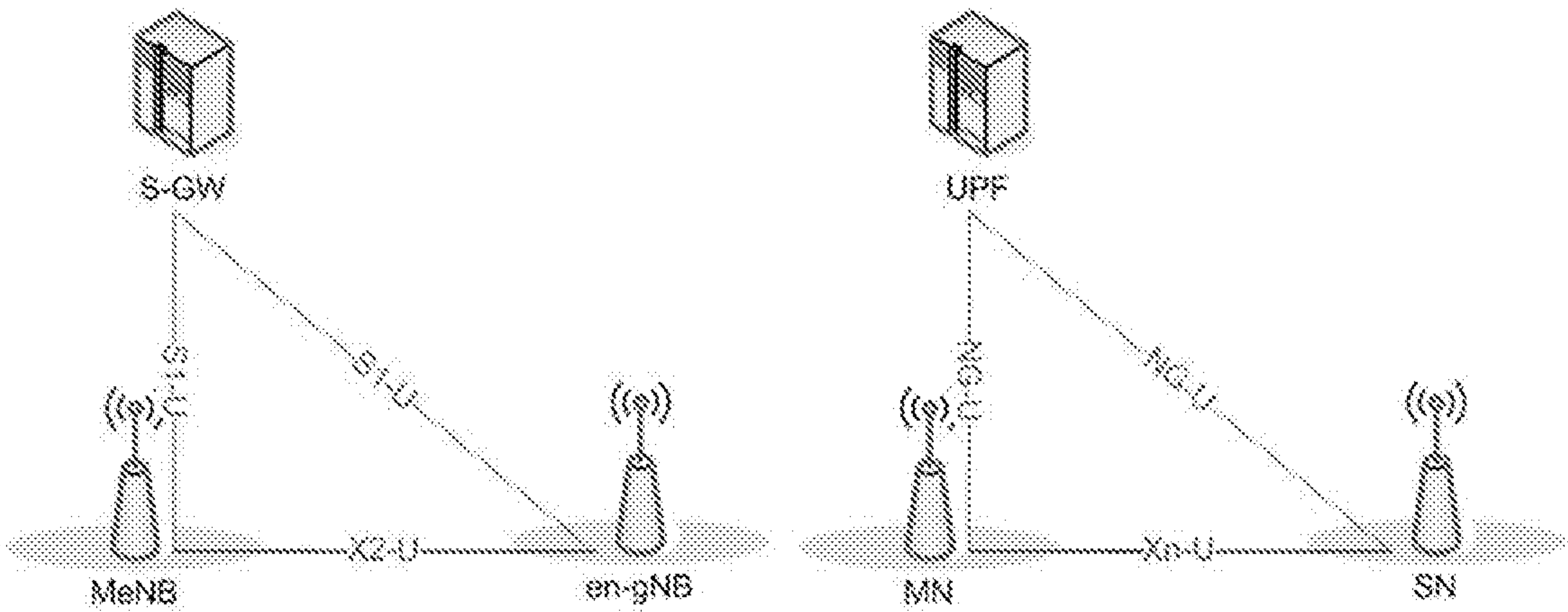


Fig. 50

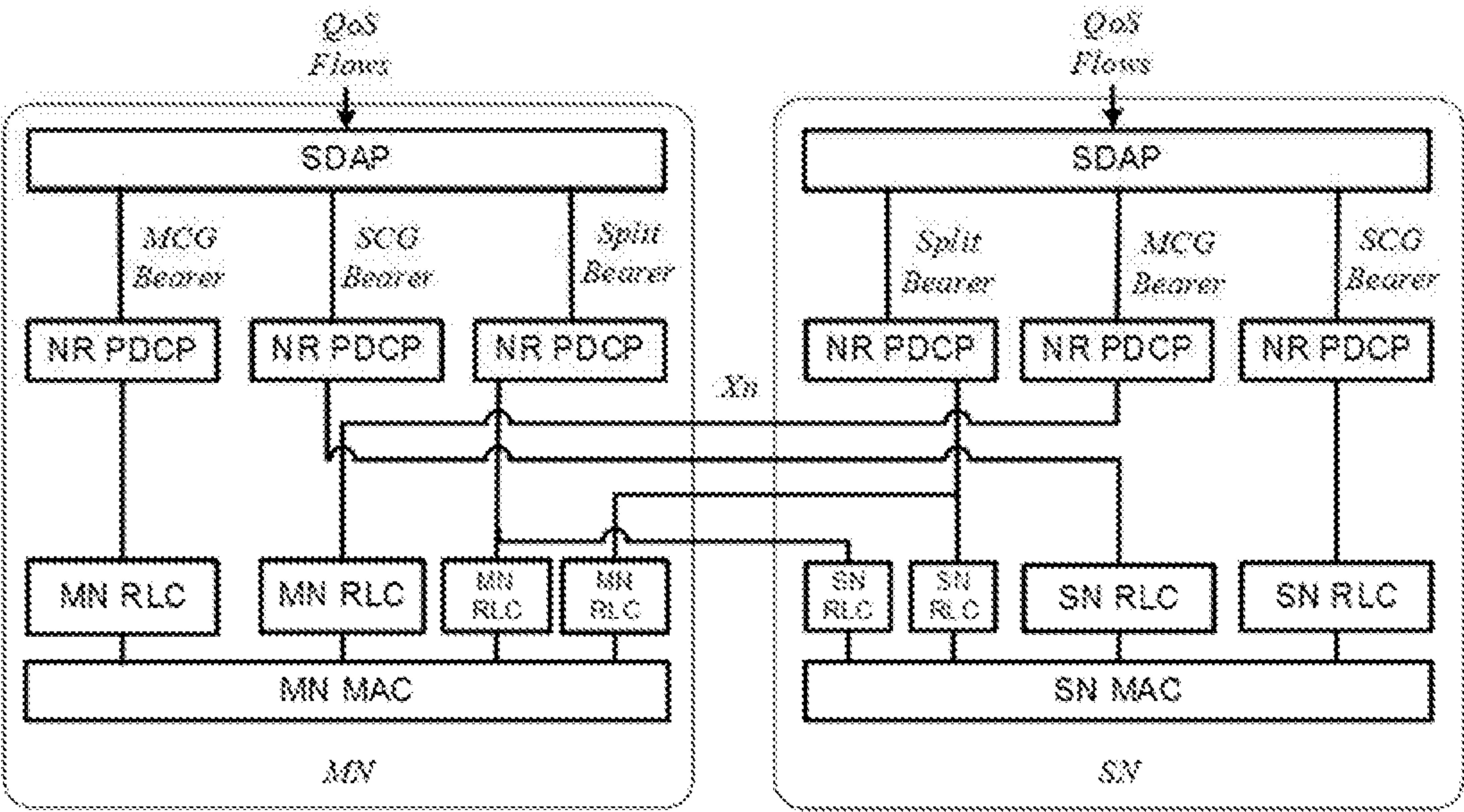


Fig. 51

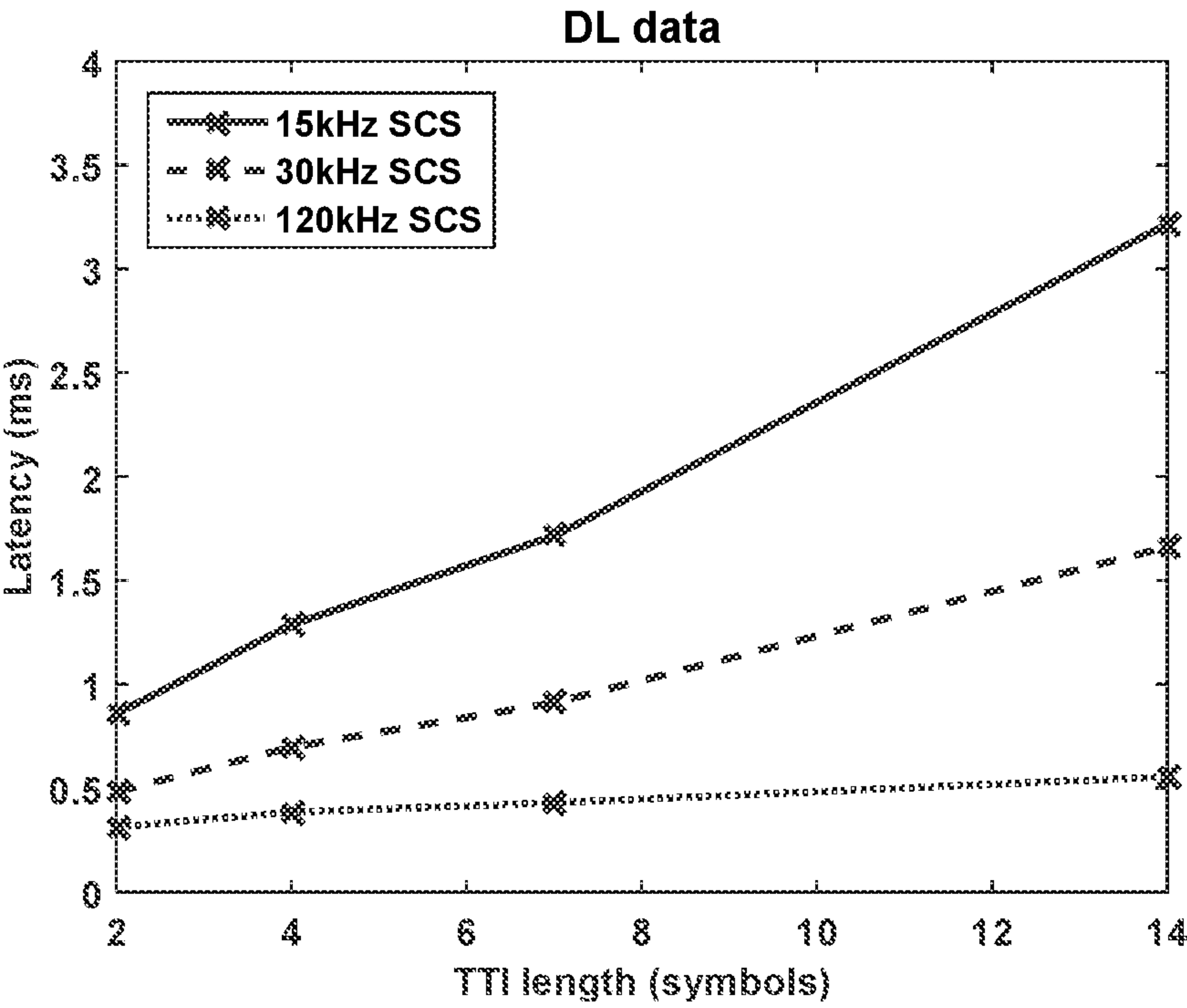


Fig. 52

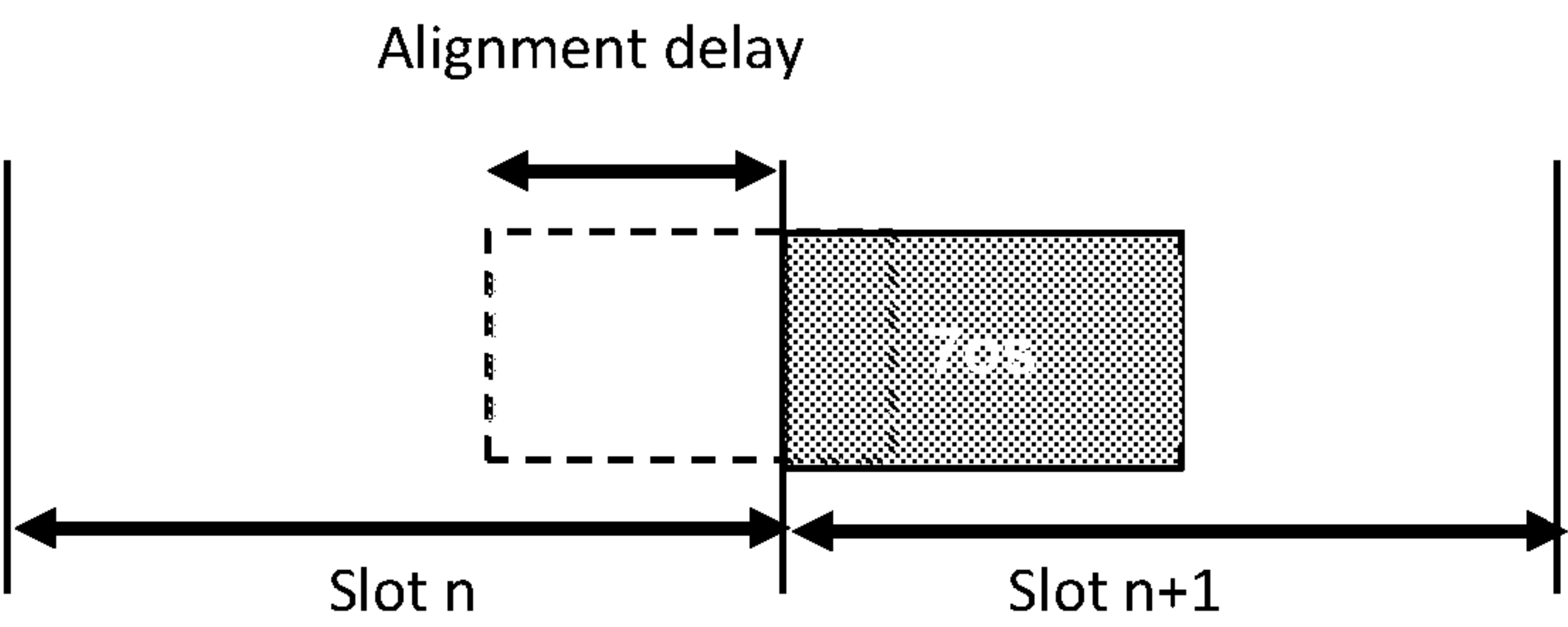


Fig. 53

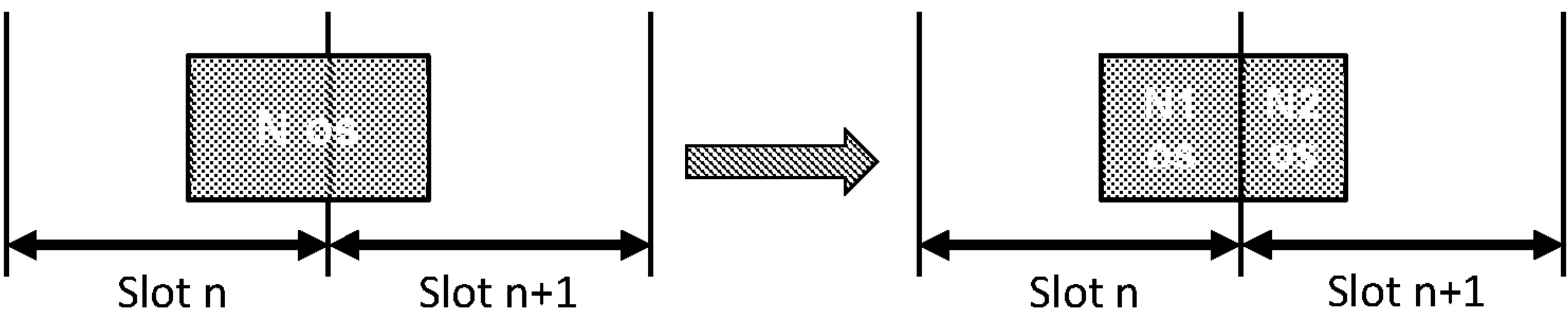


Fig. 54

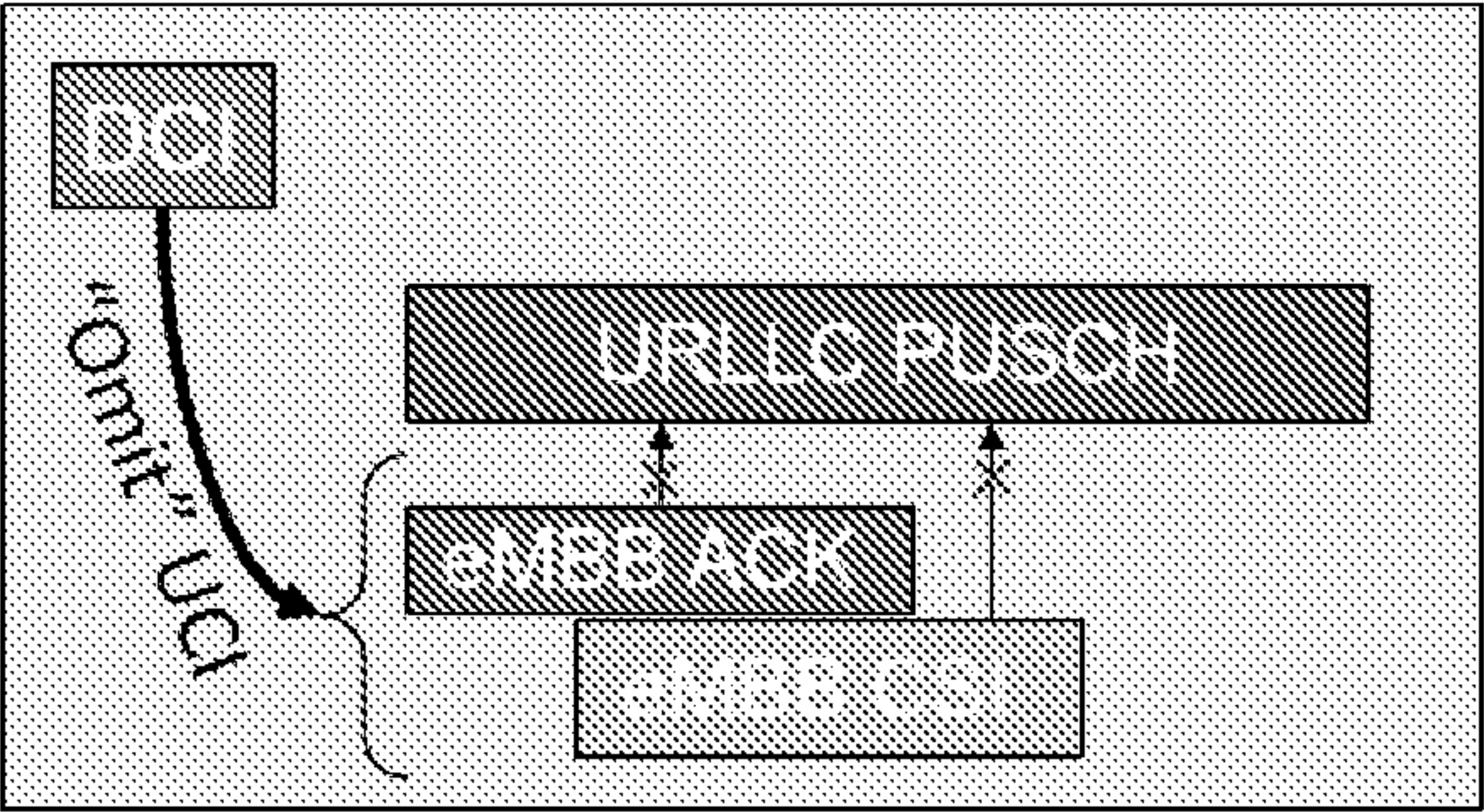


Fig. 55

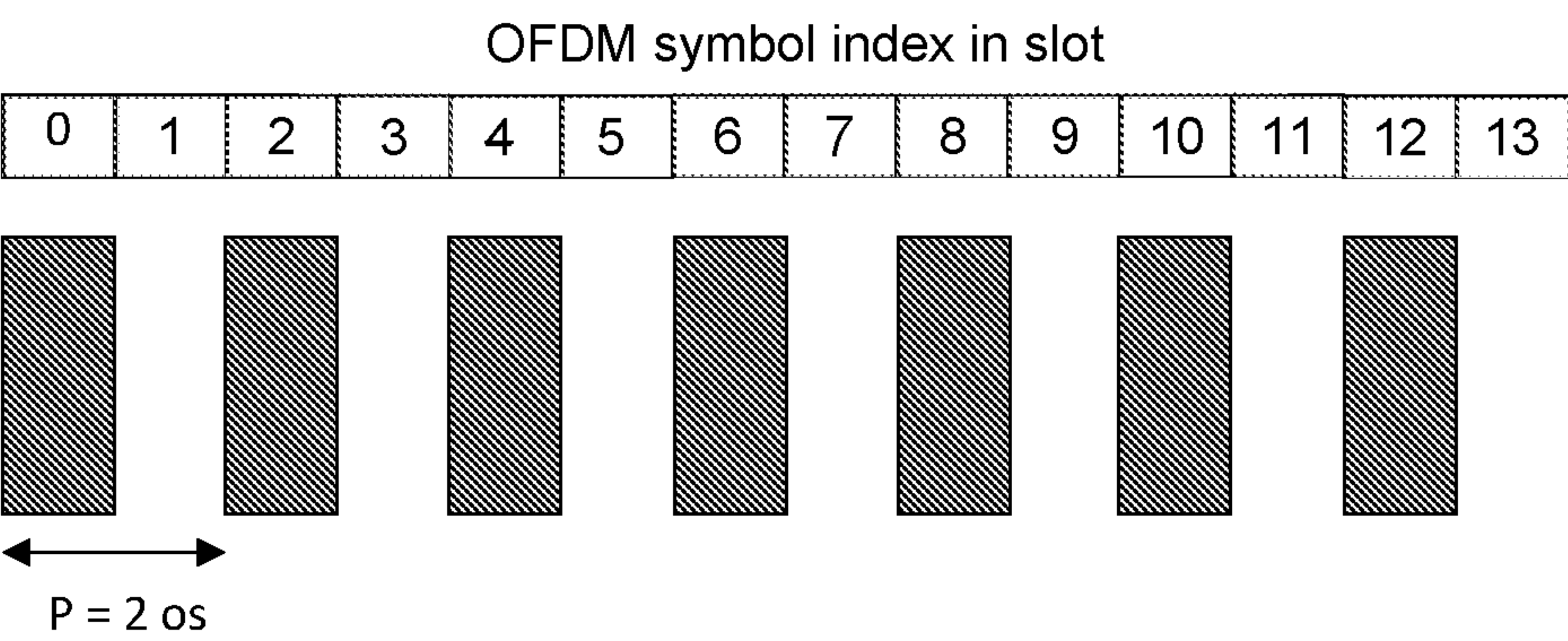


Fig. 56

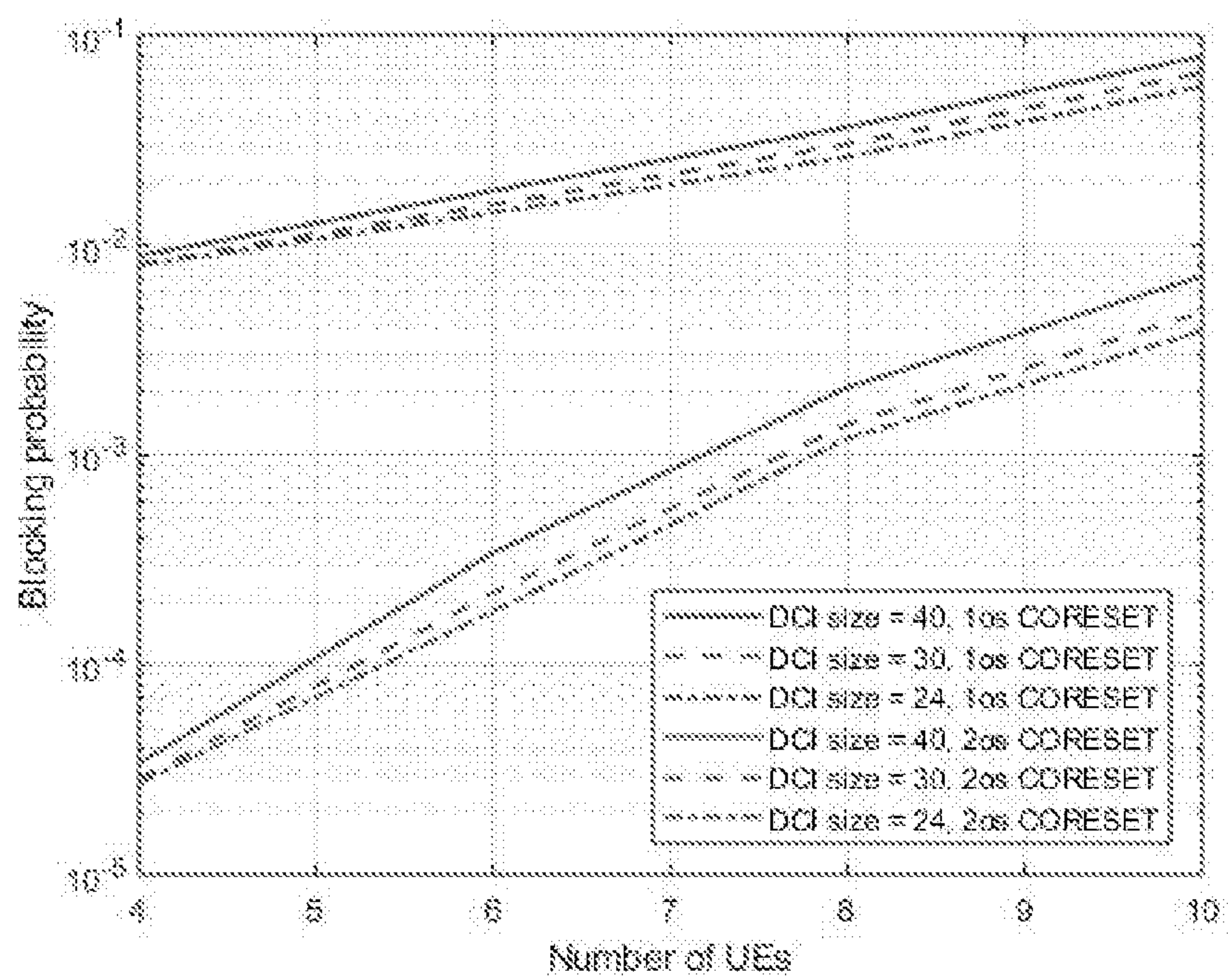


Fig. 57

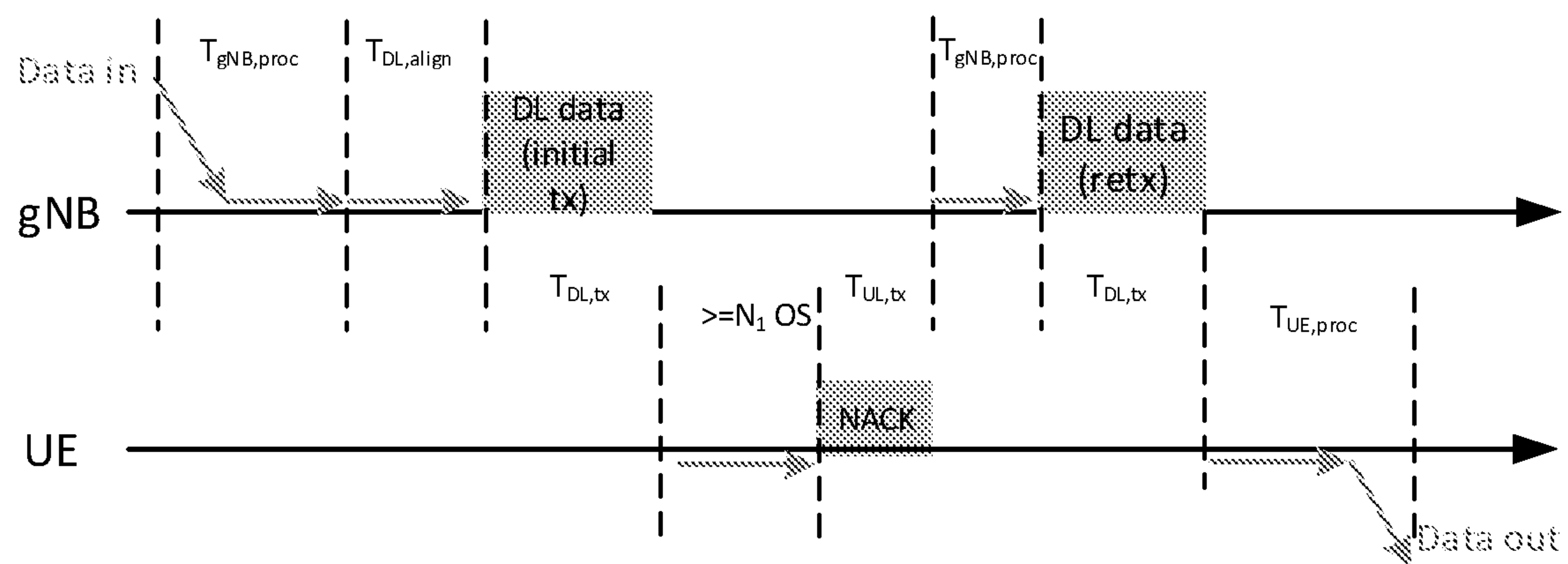


Fig. 58

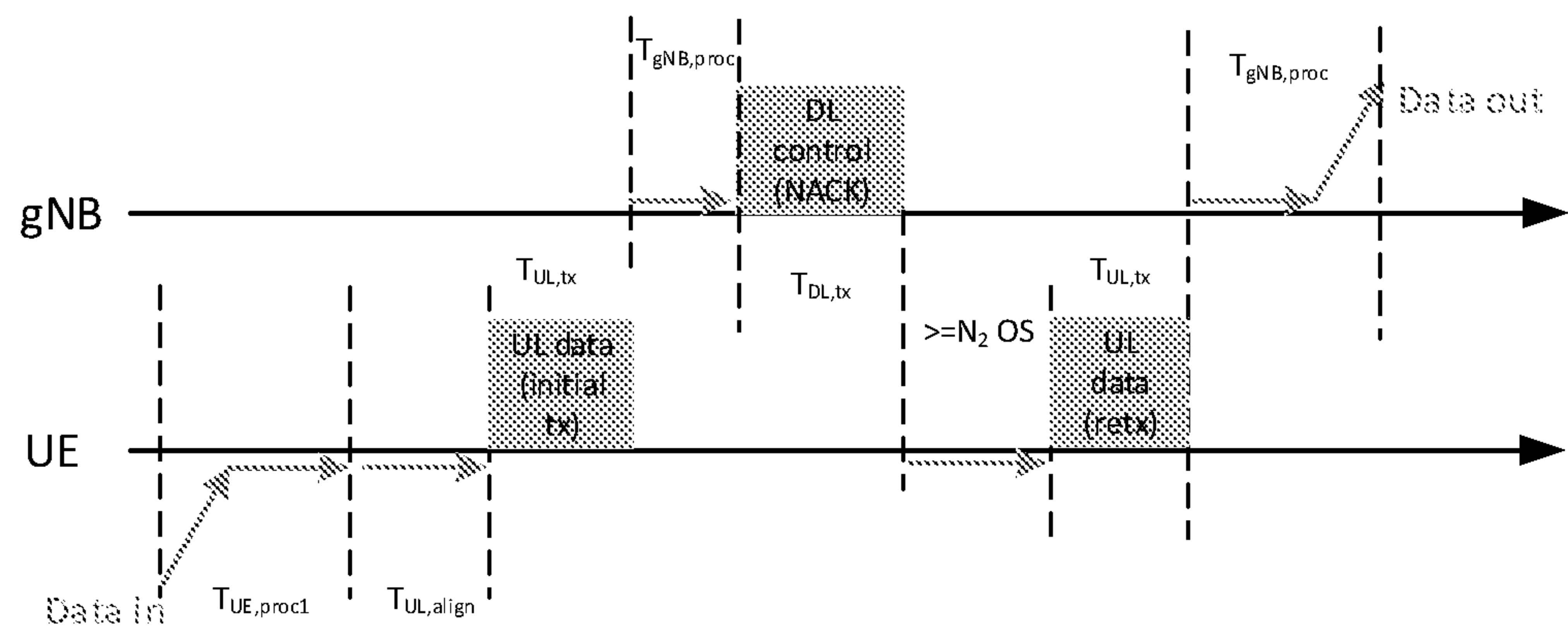


Fig. 59

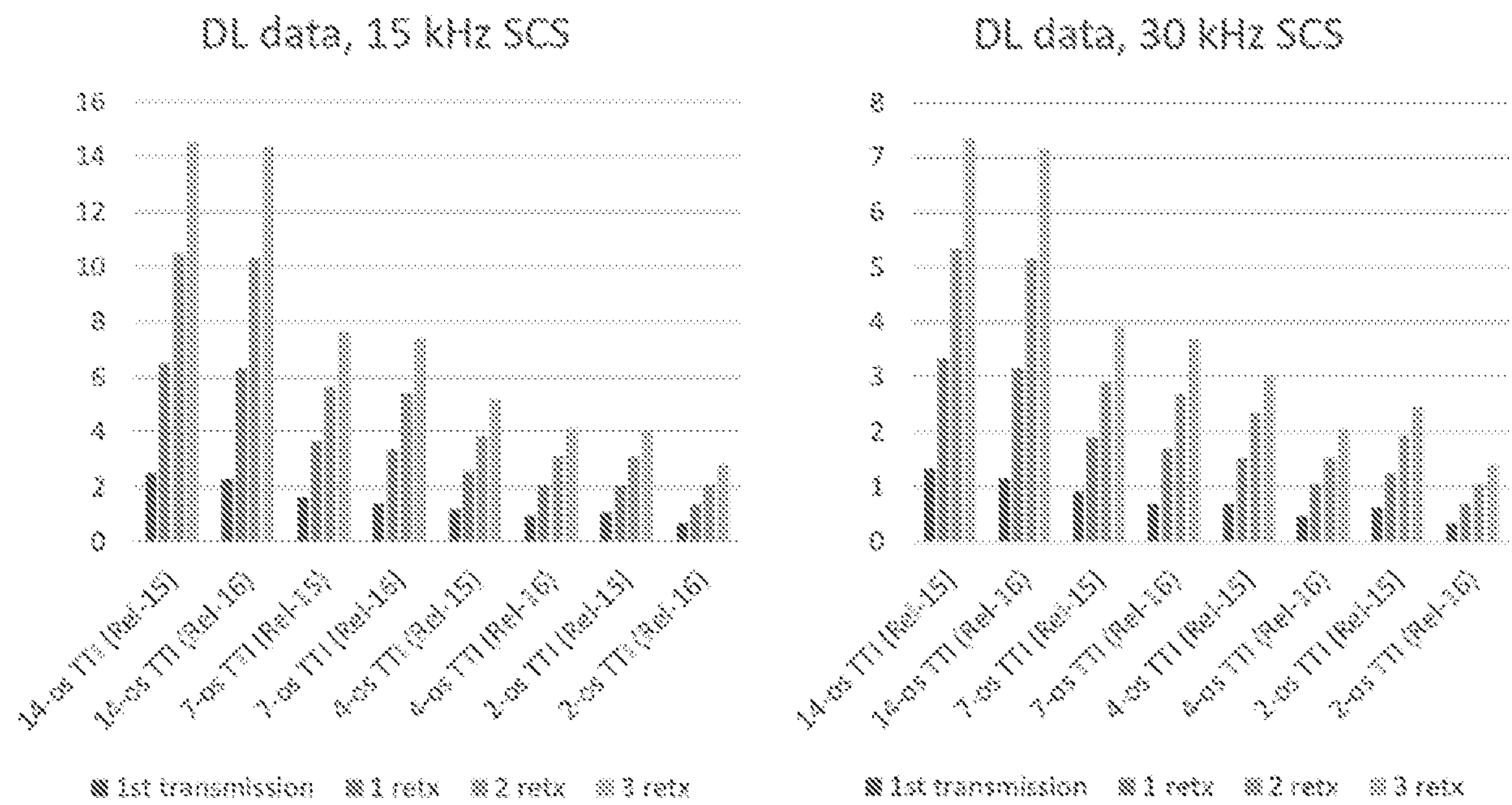


Fig. 60

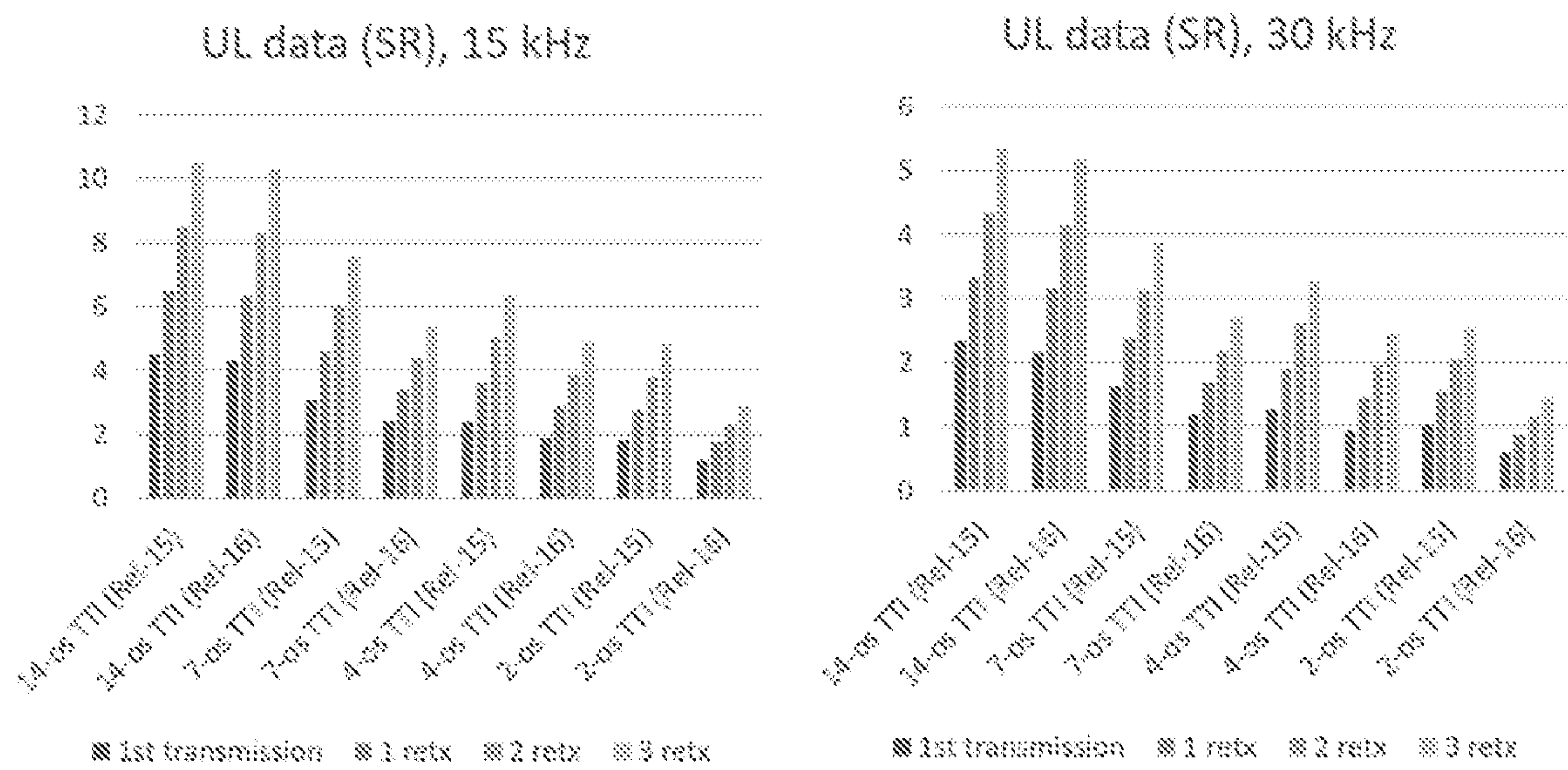


Fig. 61

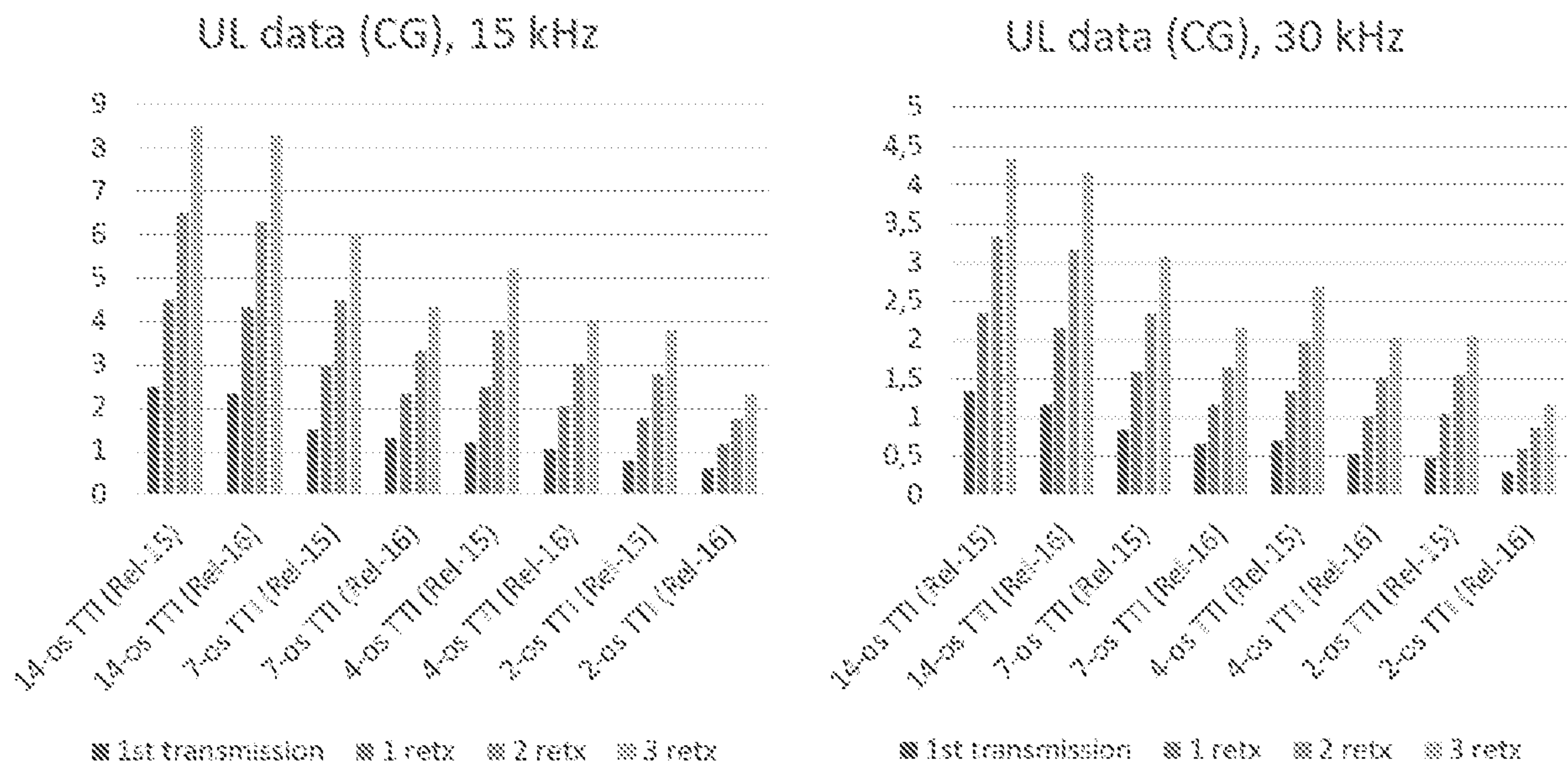


Fig. 62

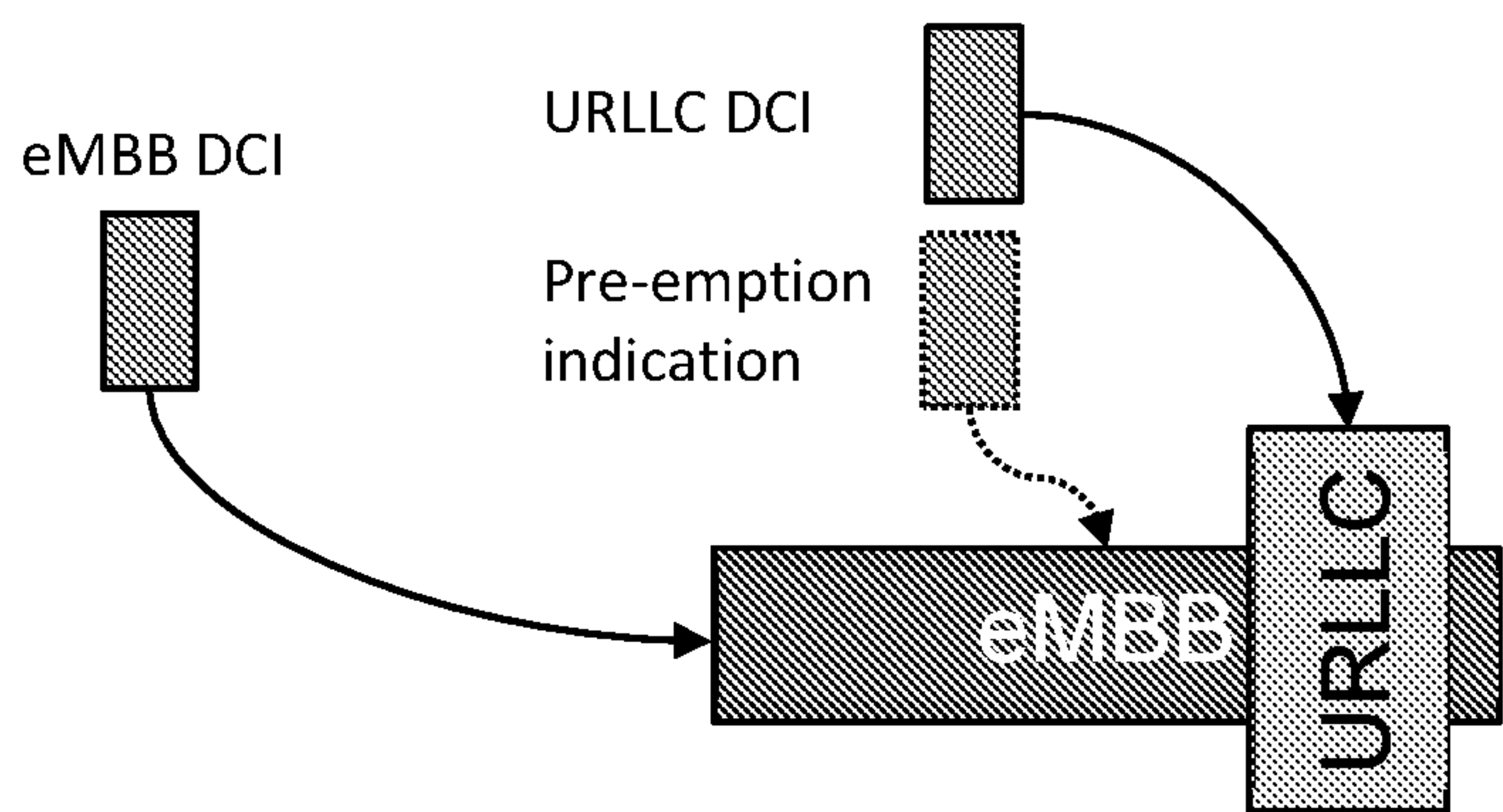


Fig. 63

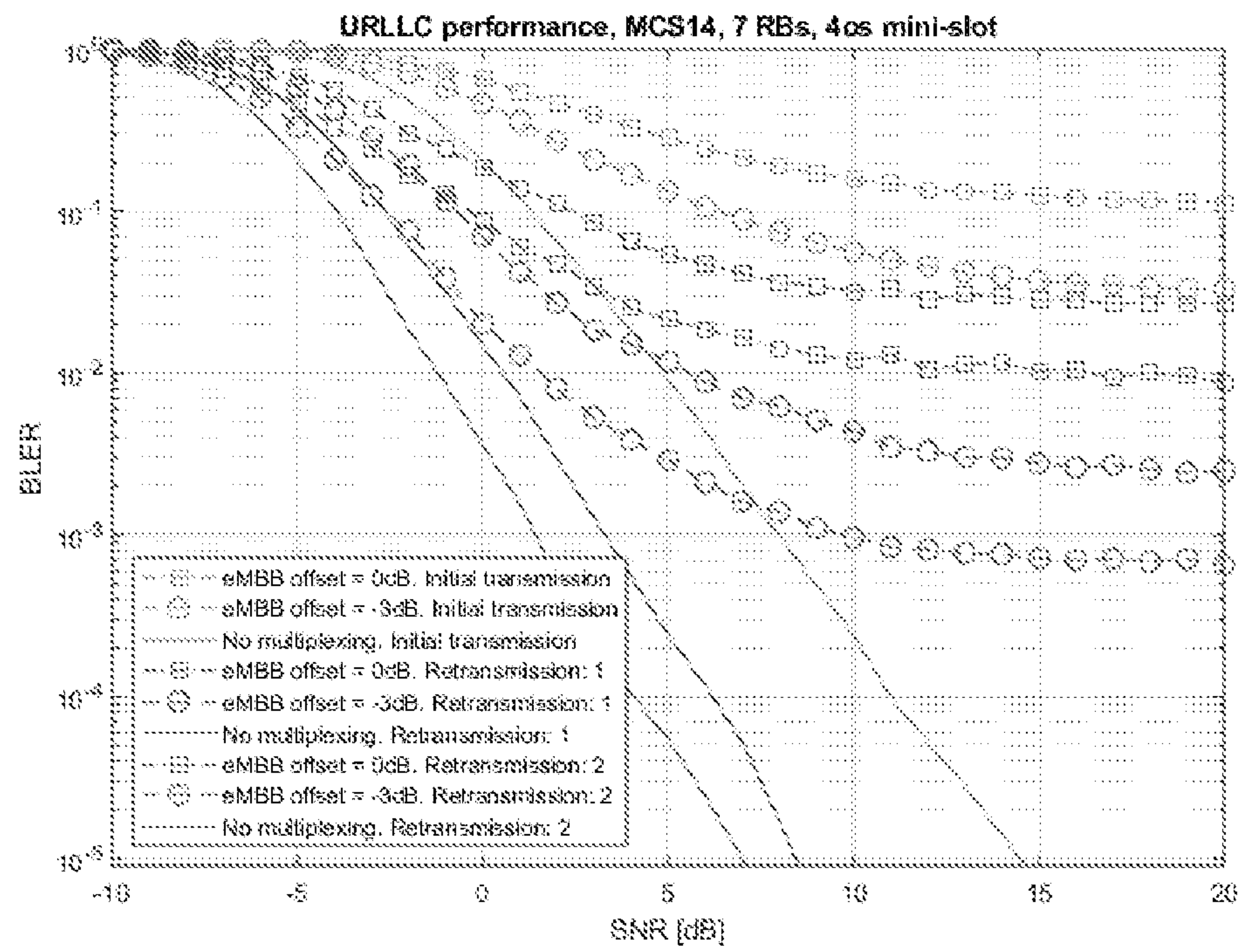


Fig. 64

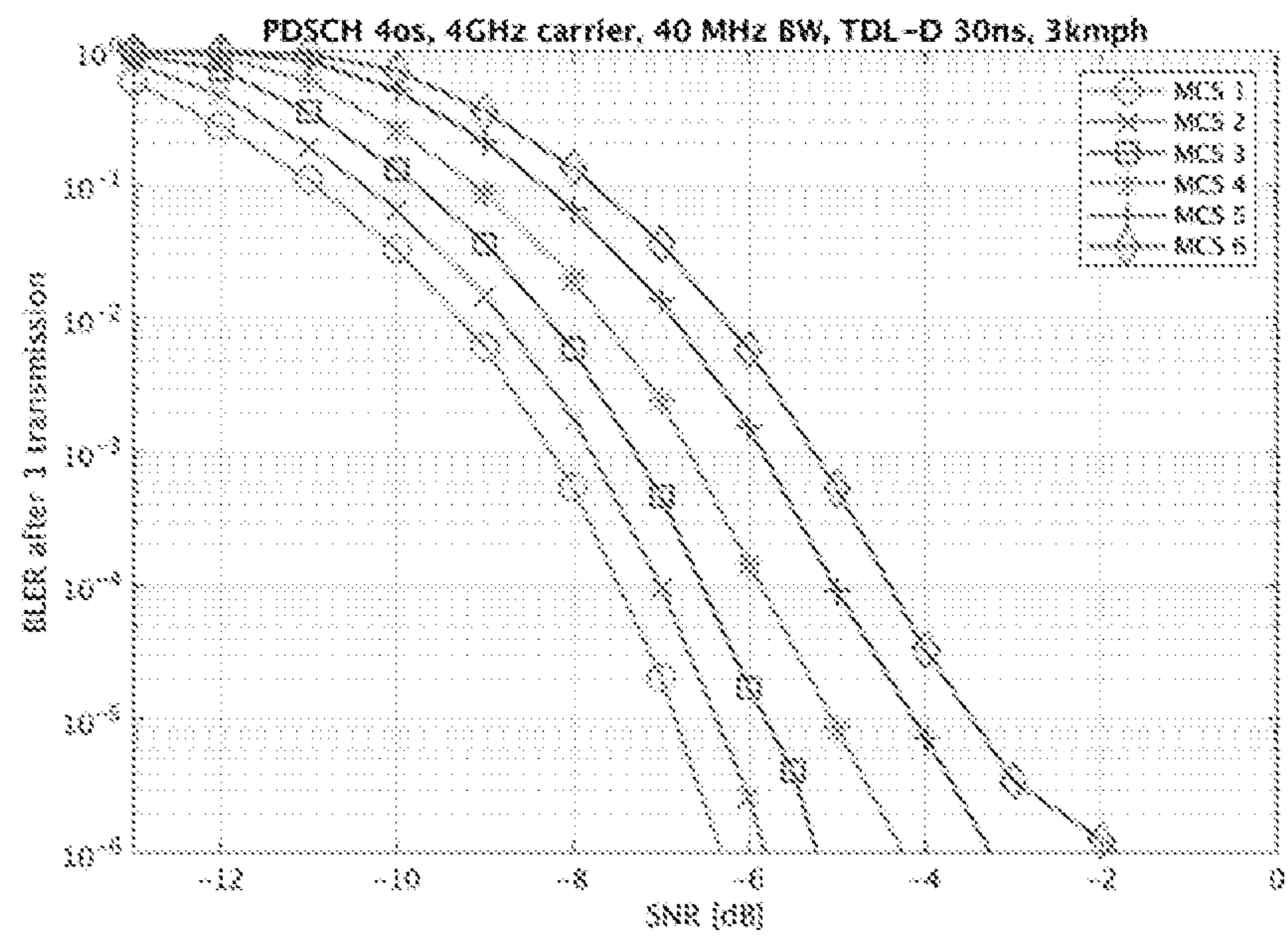


Fig. 65

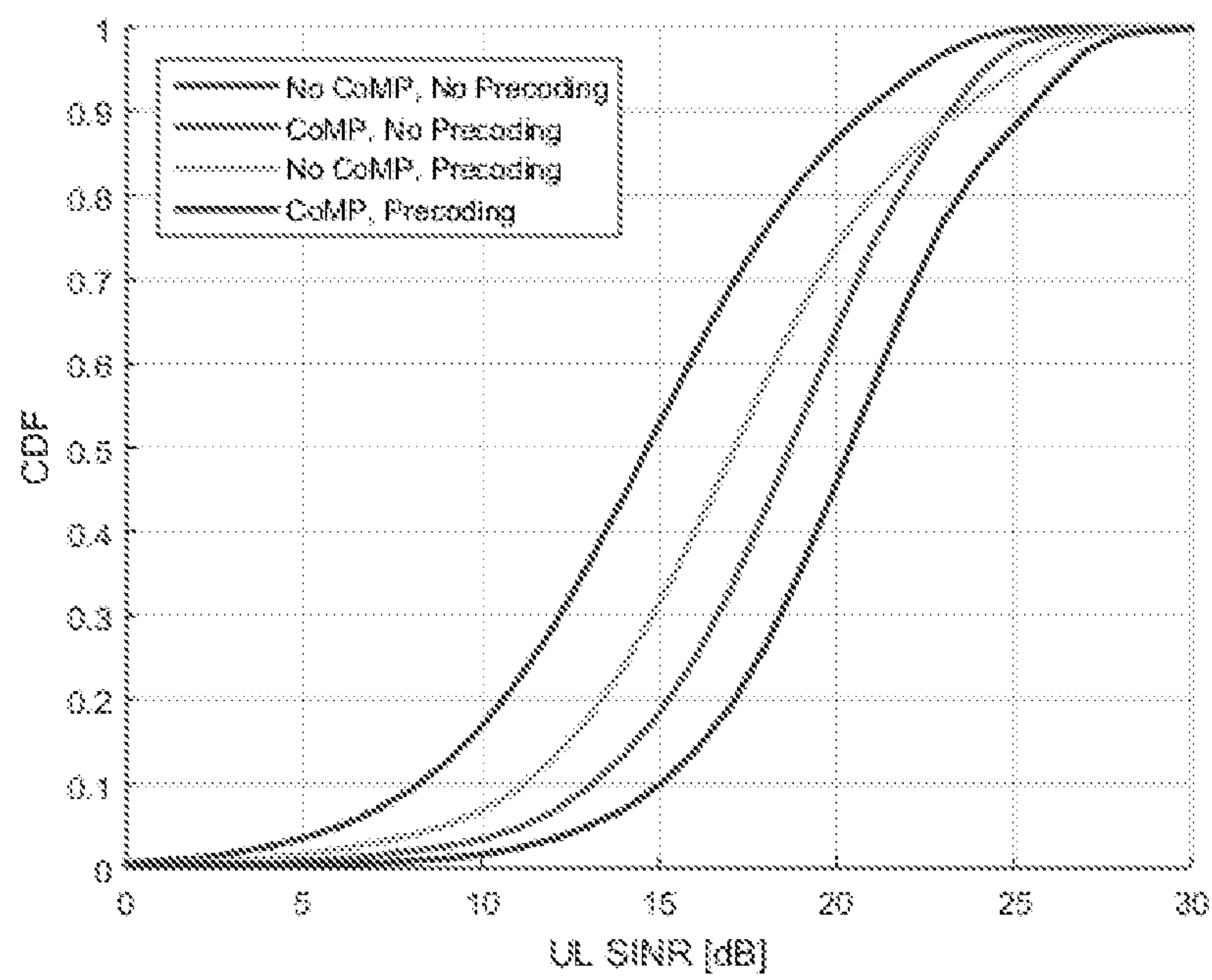


Fig. 66

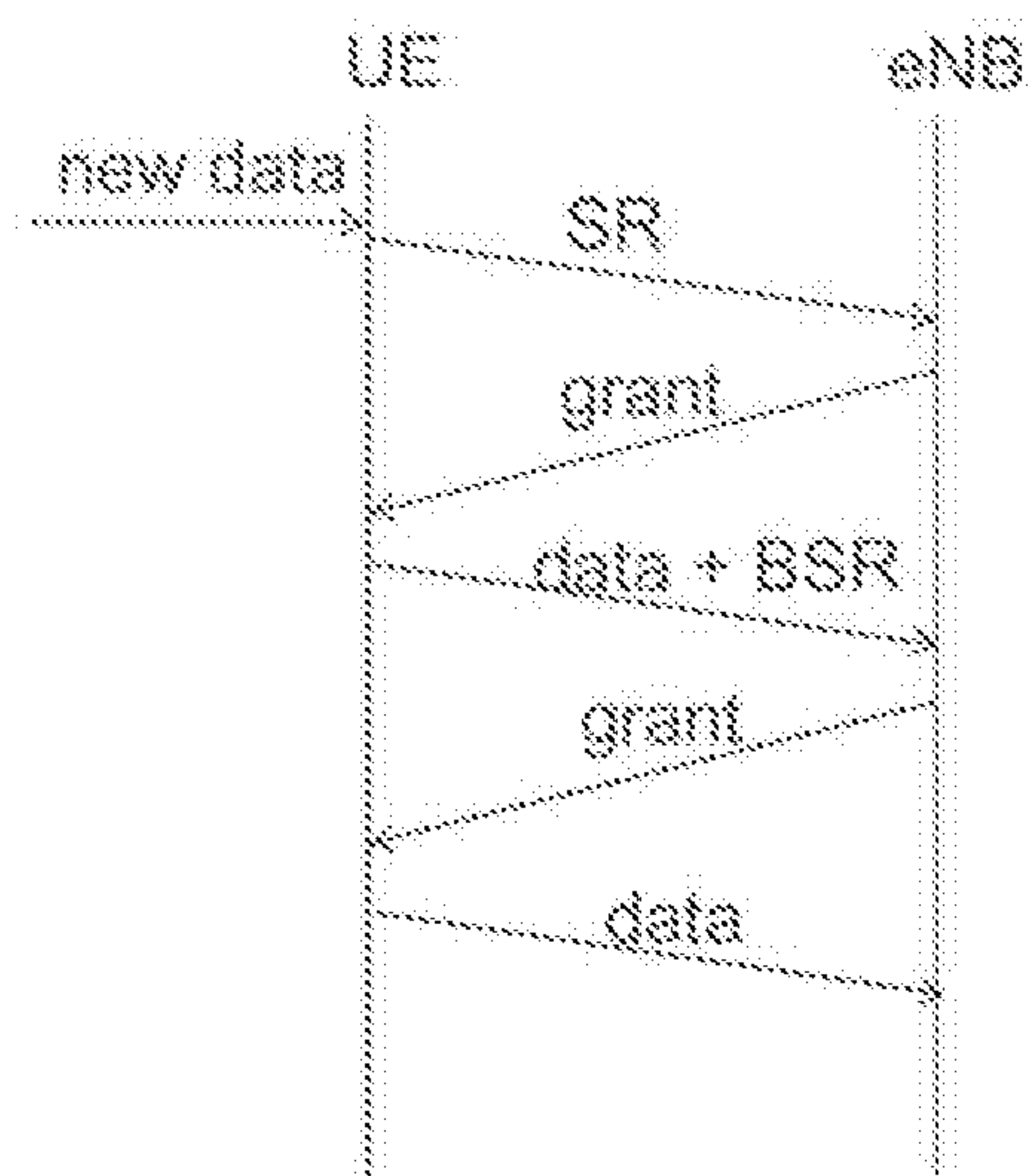


Fig. 67

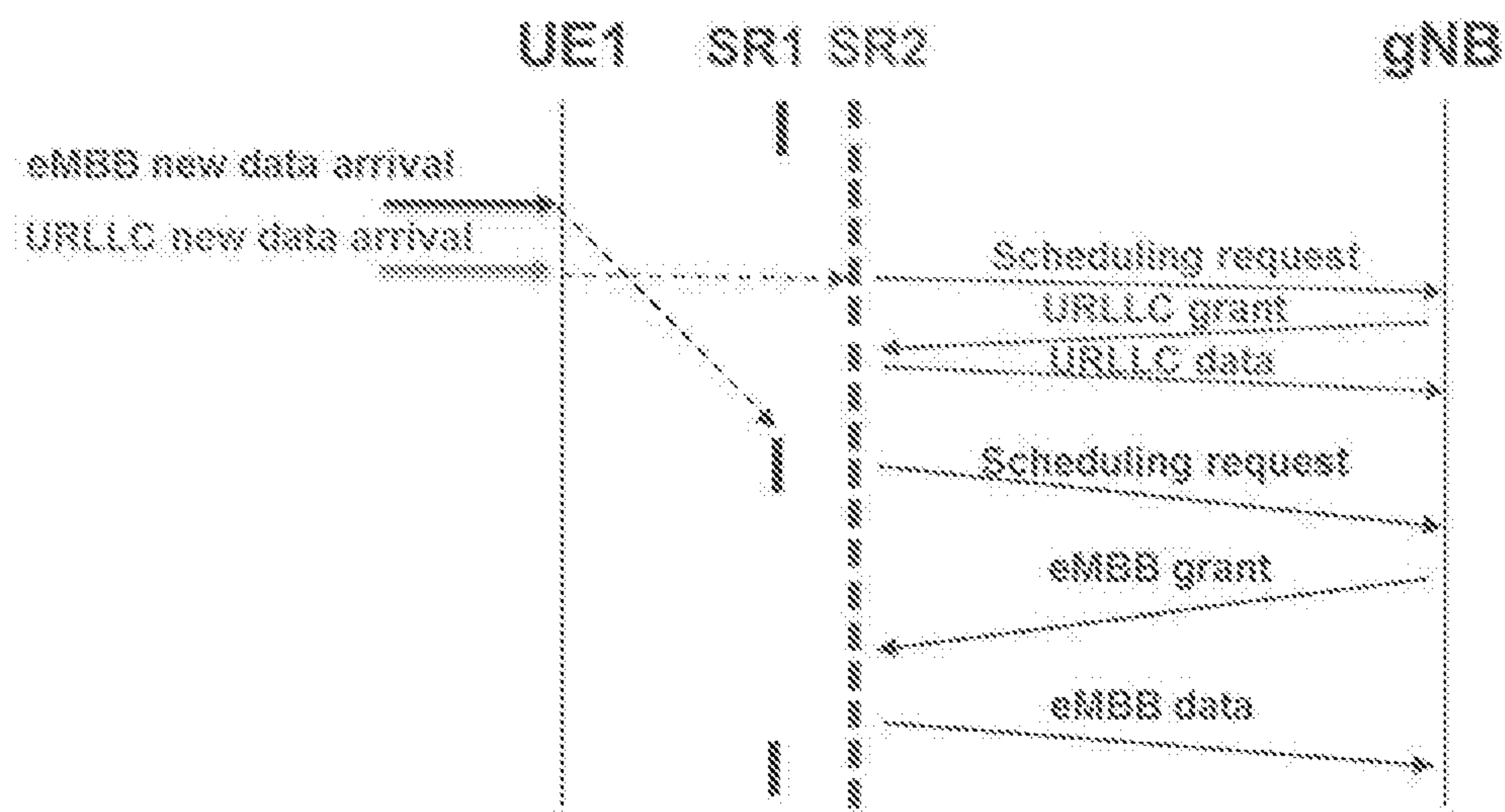


Fig. 68

- 1. Data arrival
- 2. MAC PDU for UL-SCH is already built and cannot include BSR MAC CE

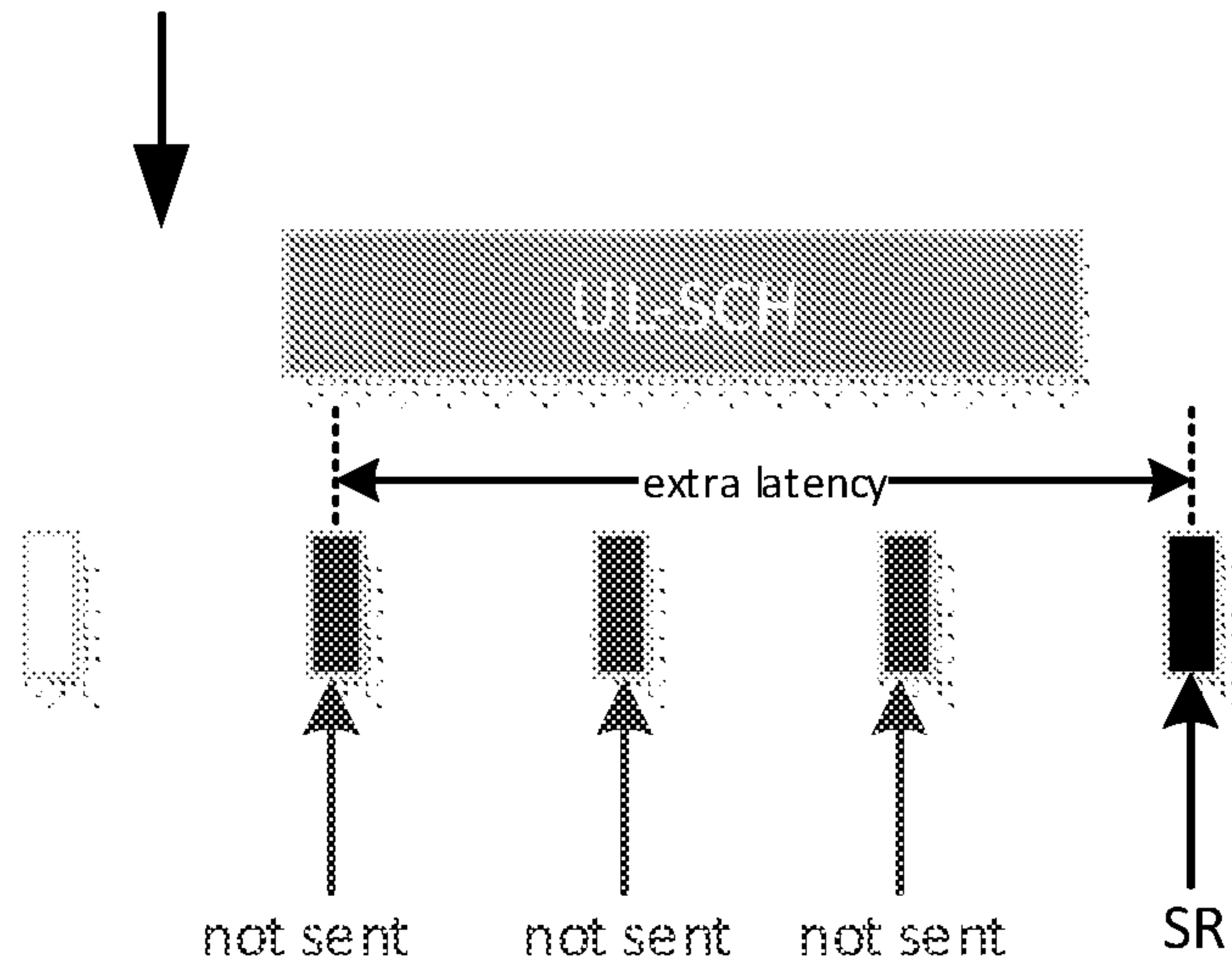


Fig. 69

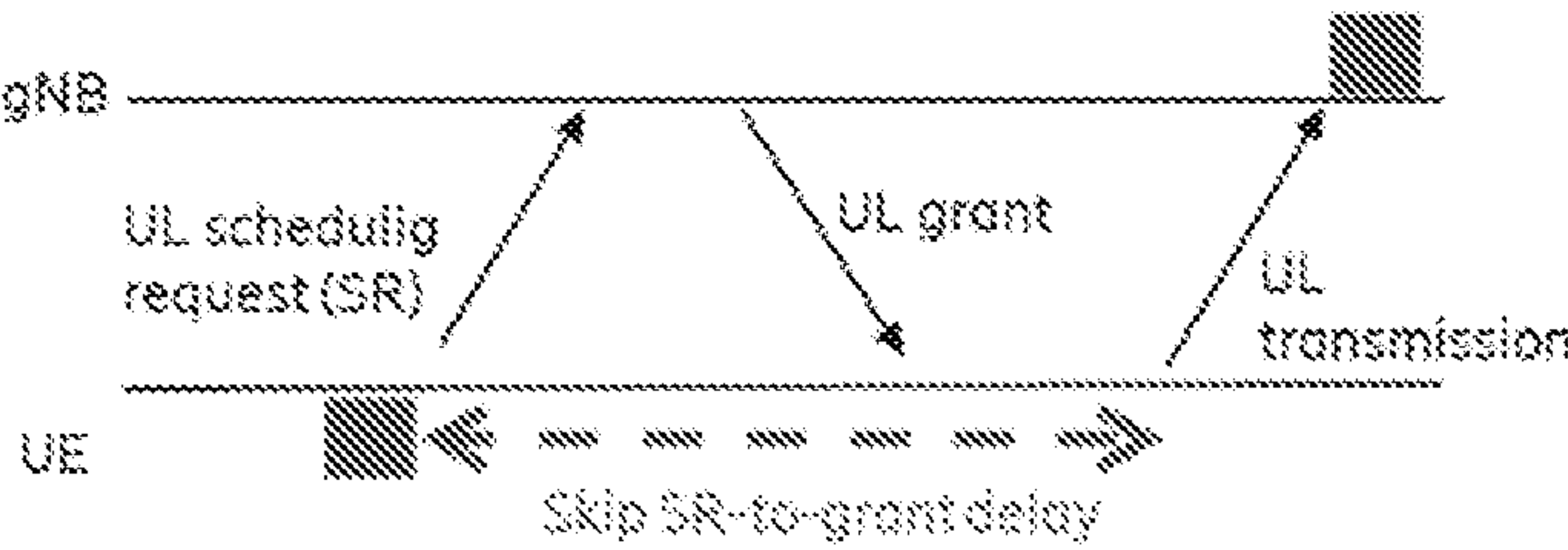


Fig. 70

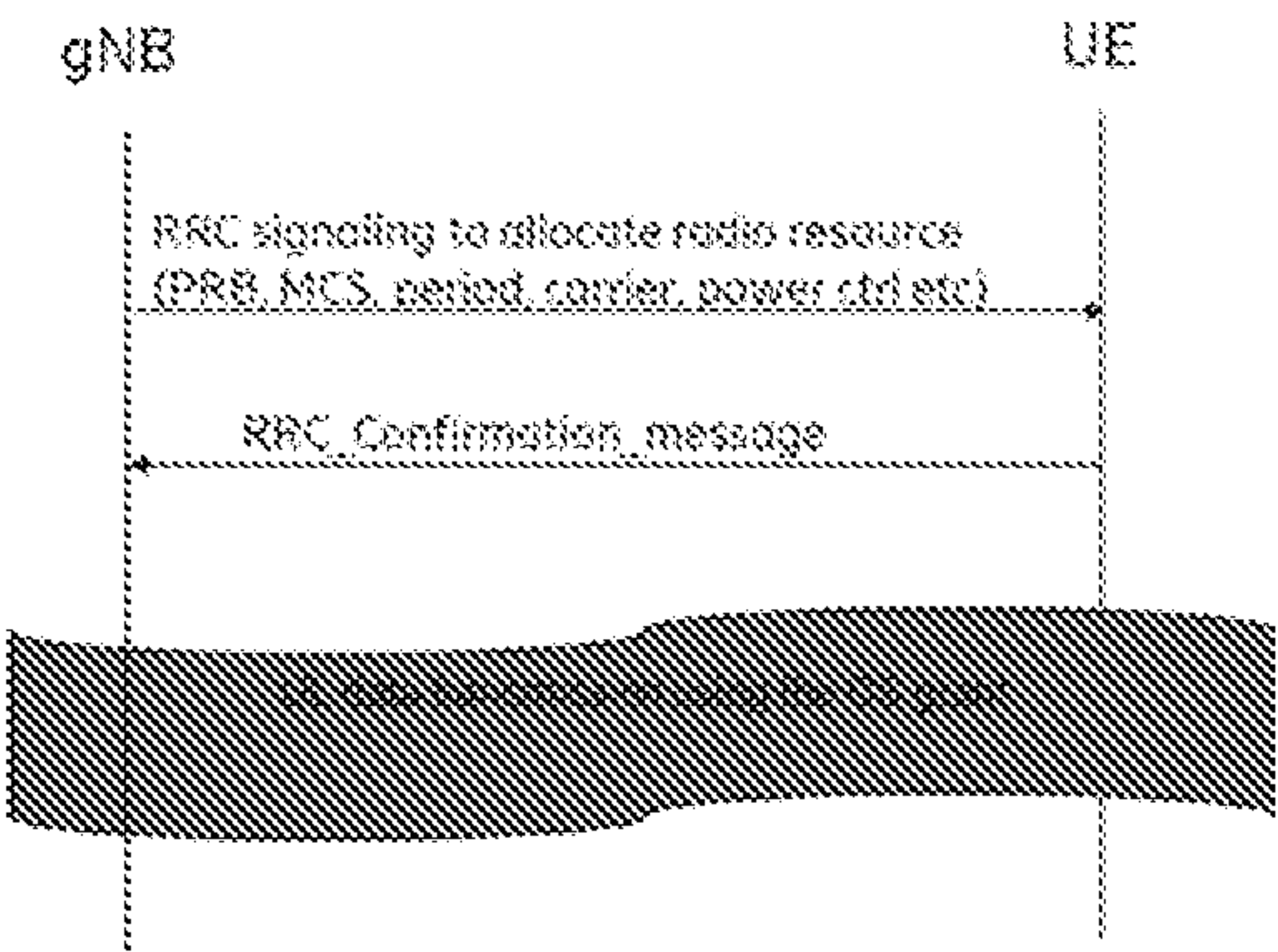


Fig. 71

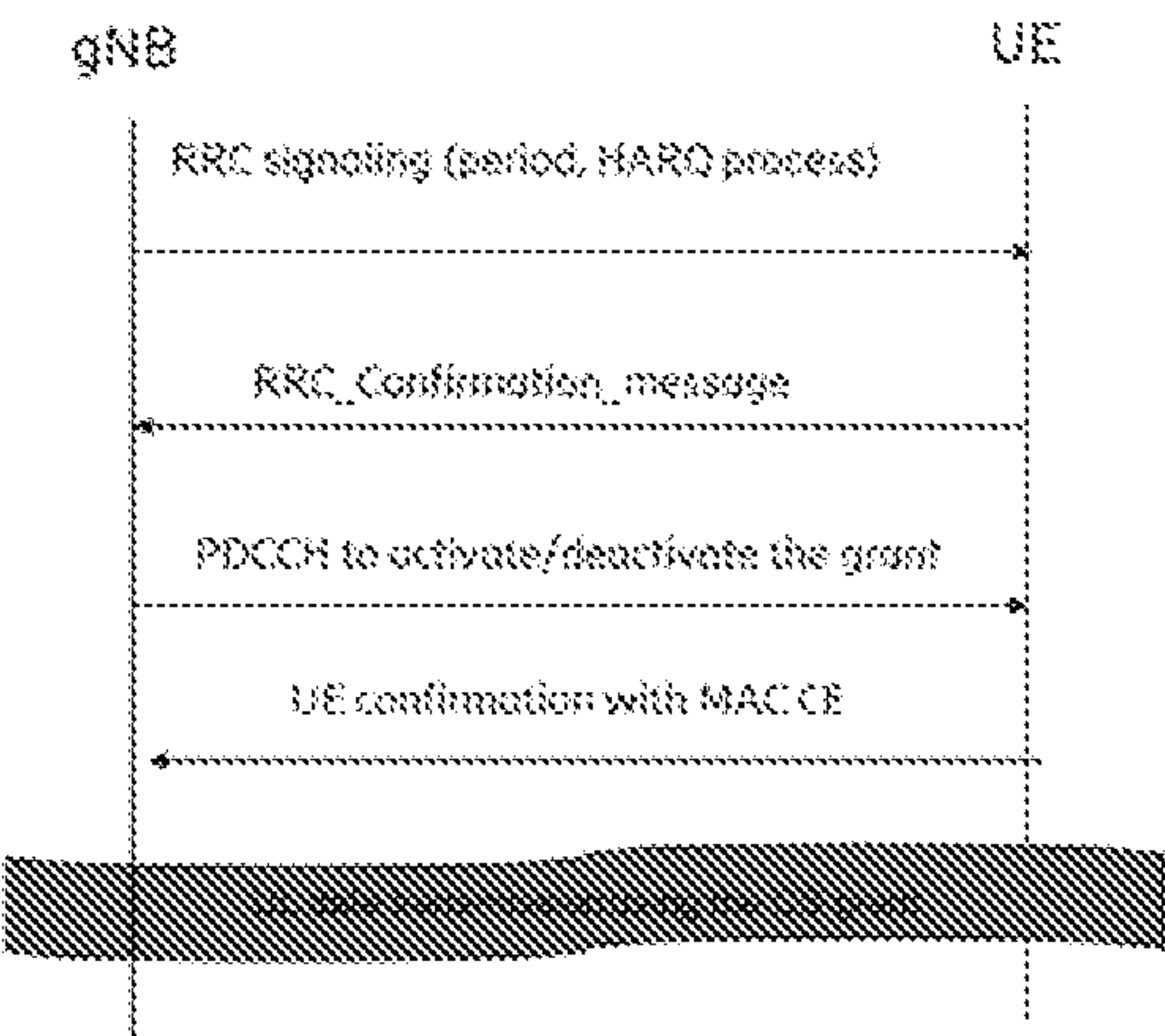


Fig. 72

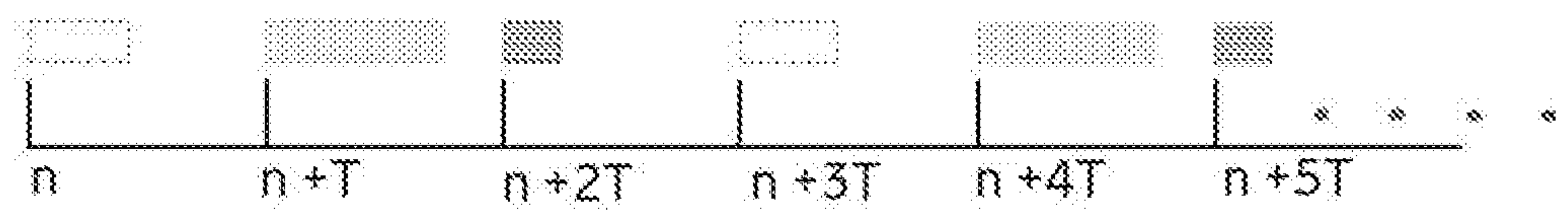


Fig. 73

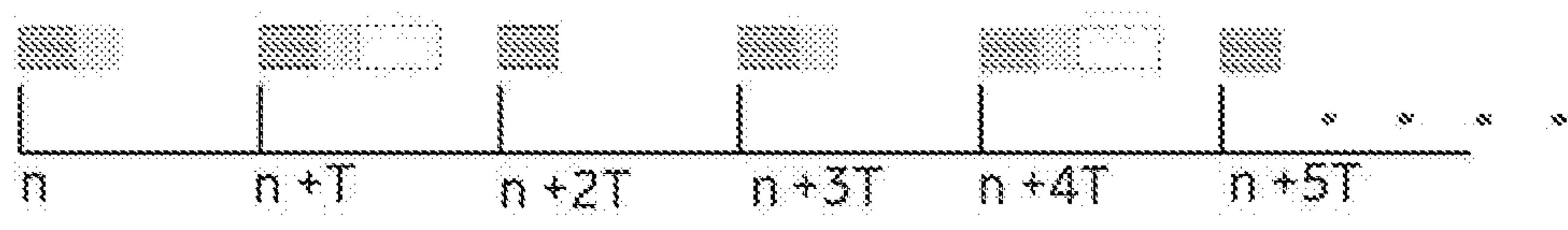


Fig. 74

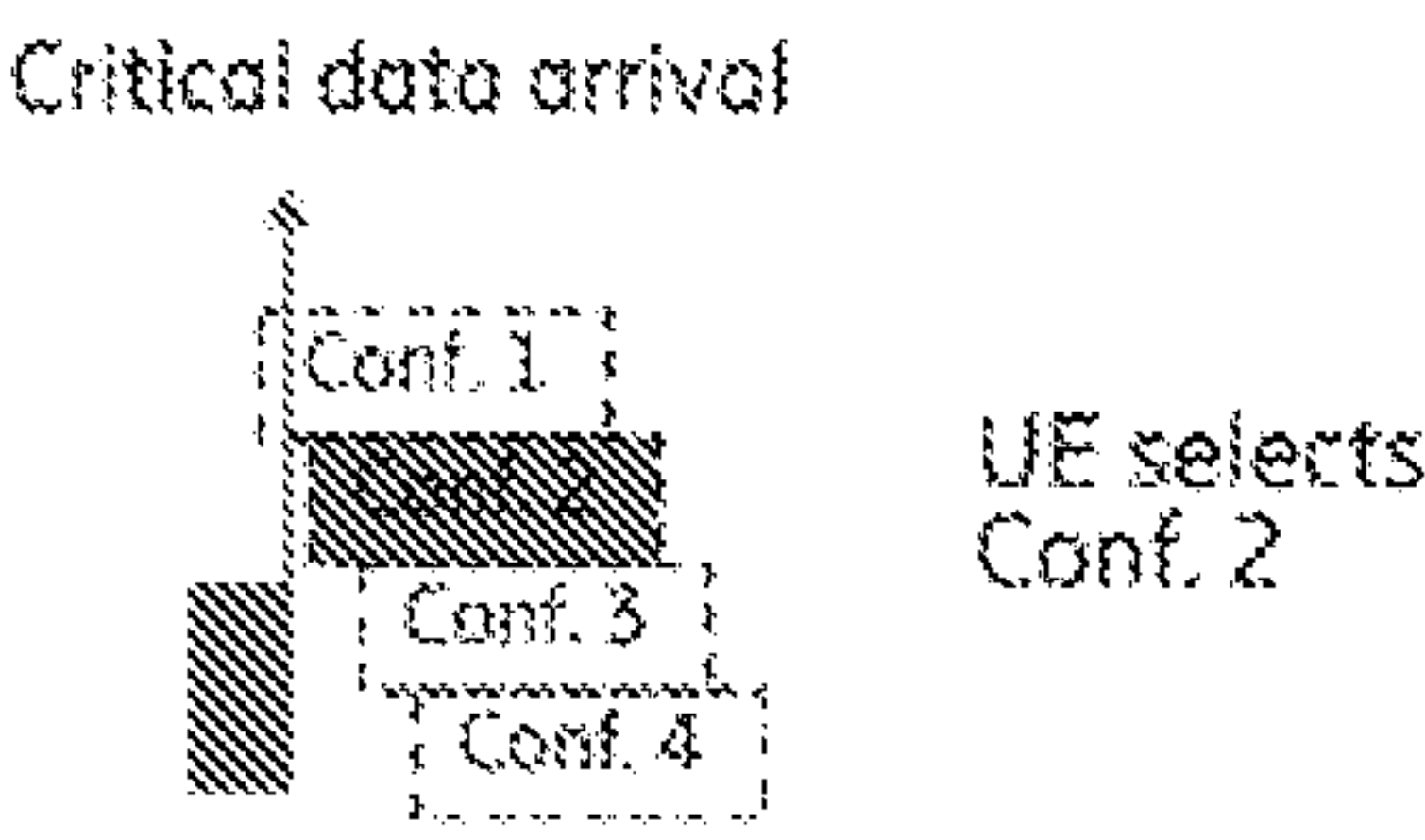


Fig. 75

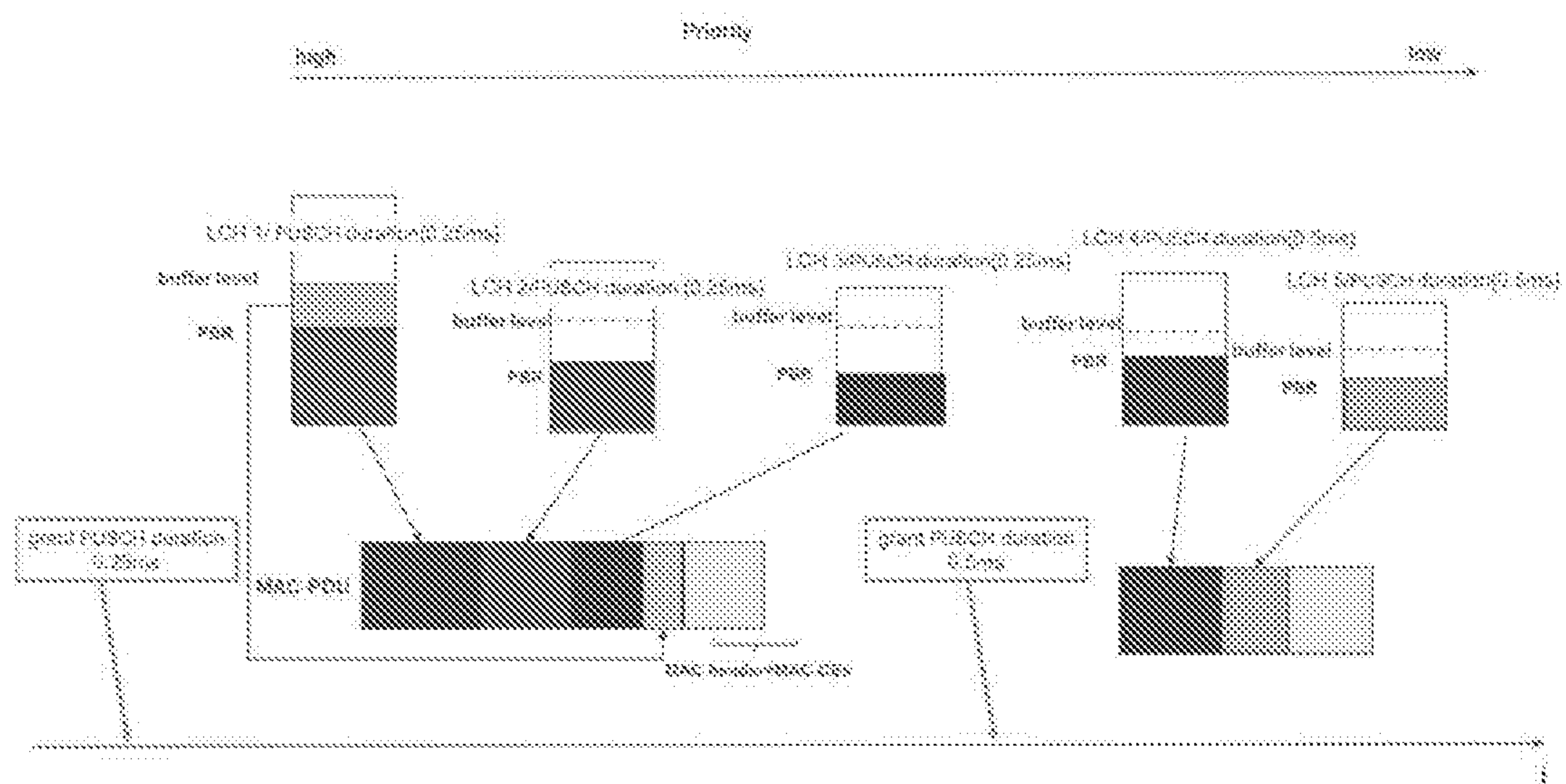


Fig. 76

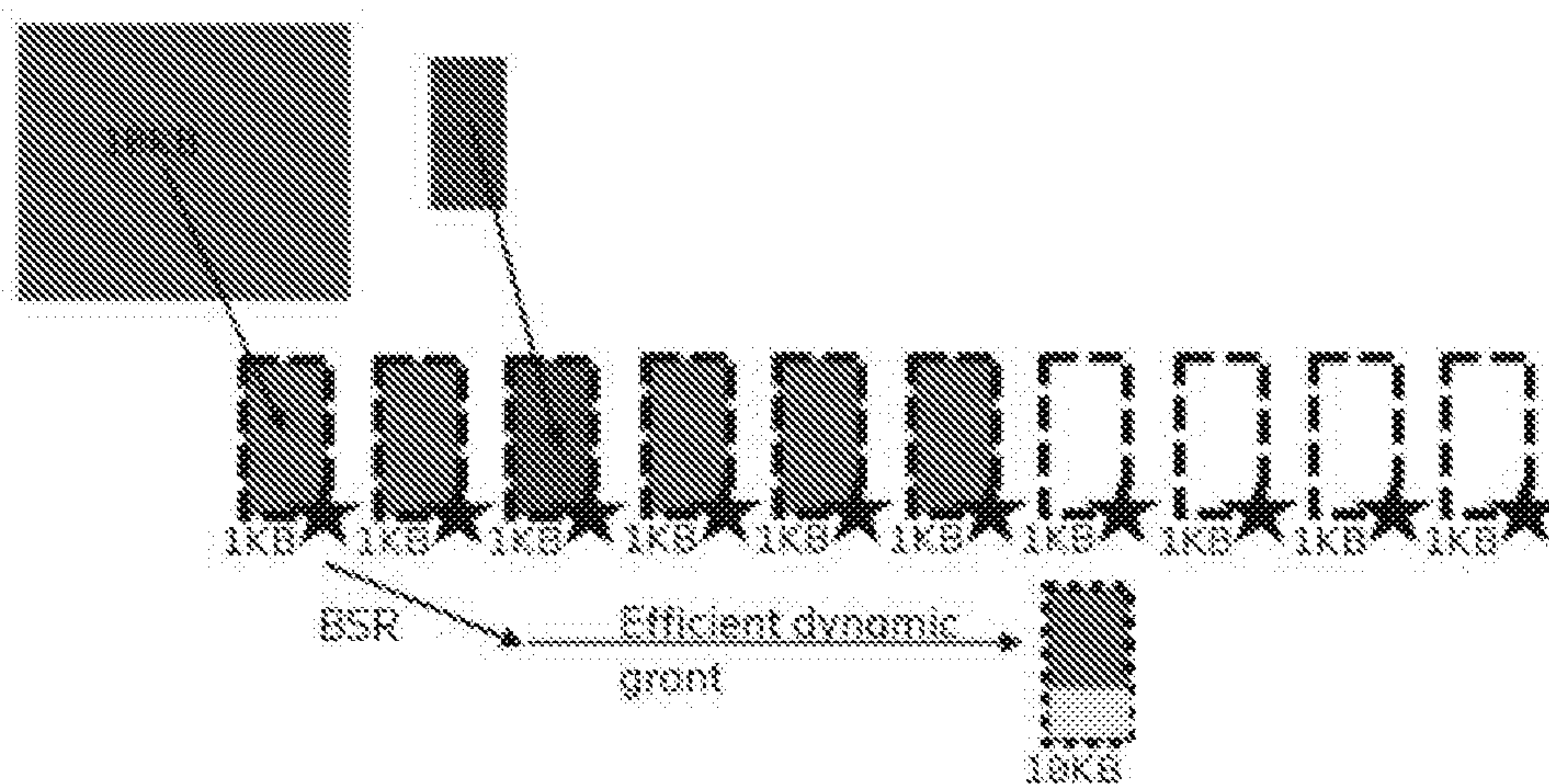


Fig. 77

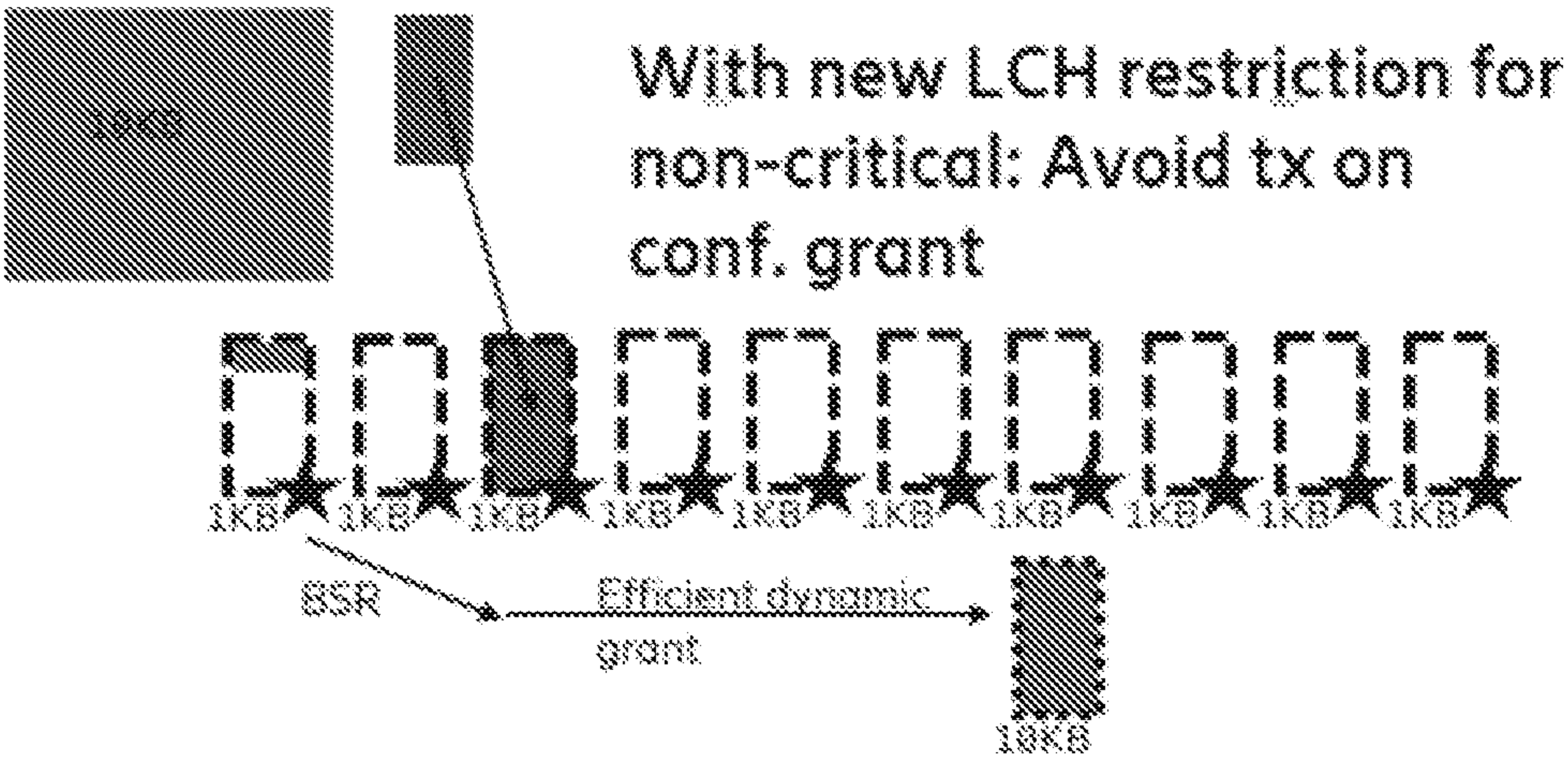


Fig. 78

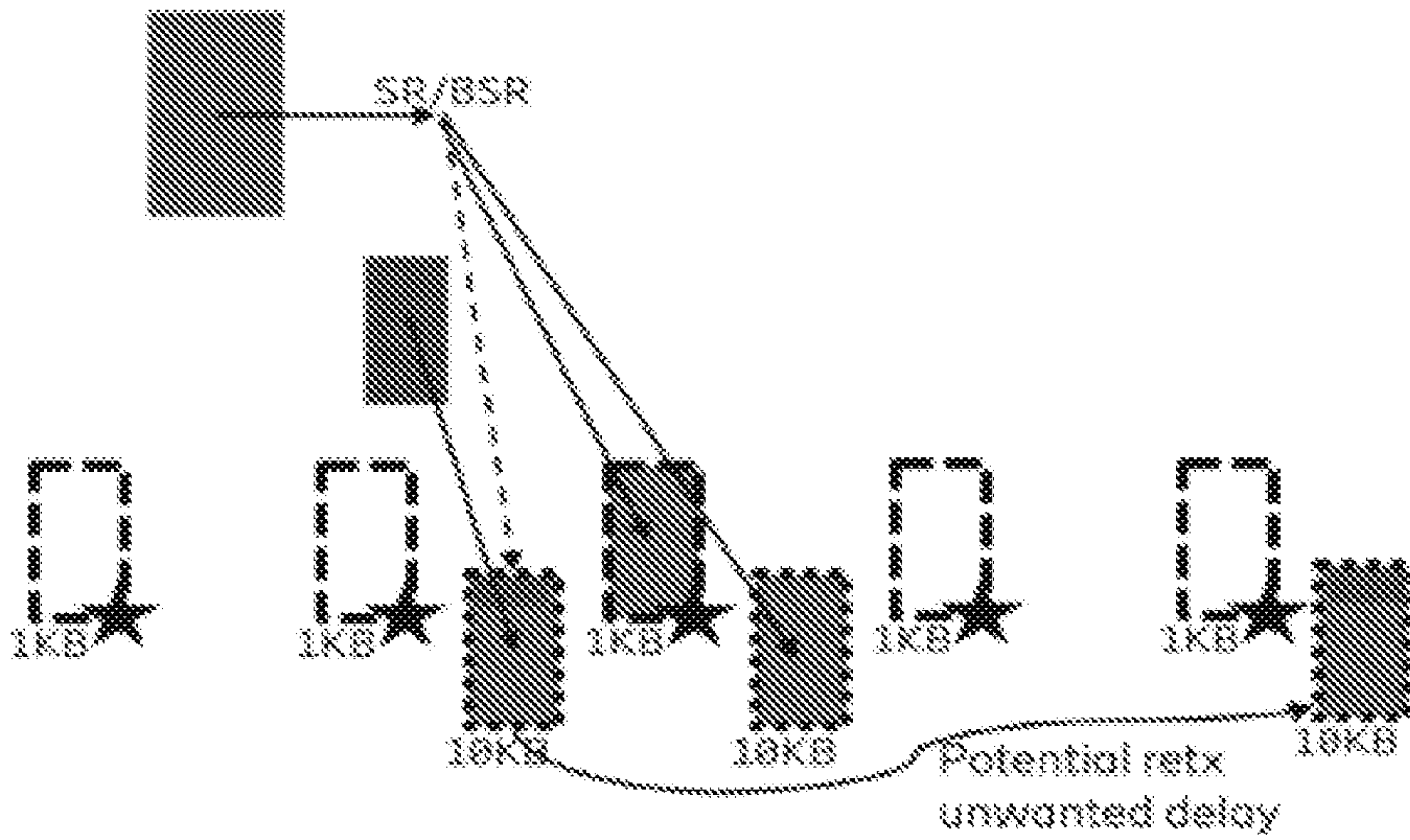


Fig. 79

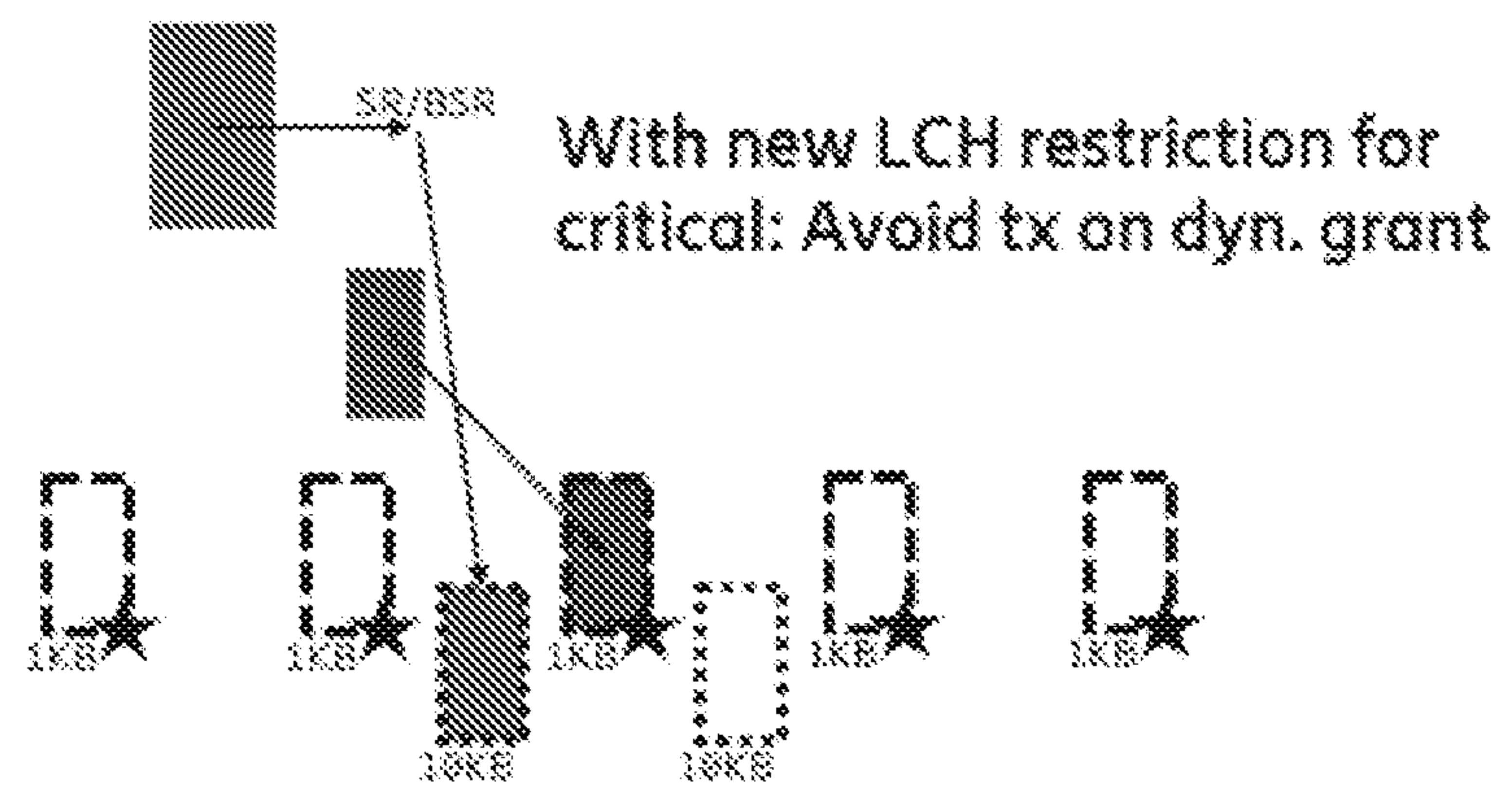


Fig. 80

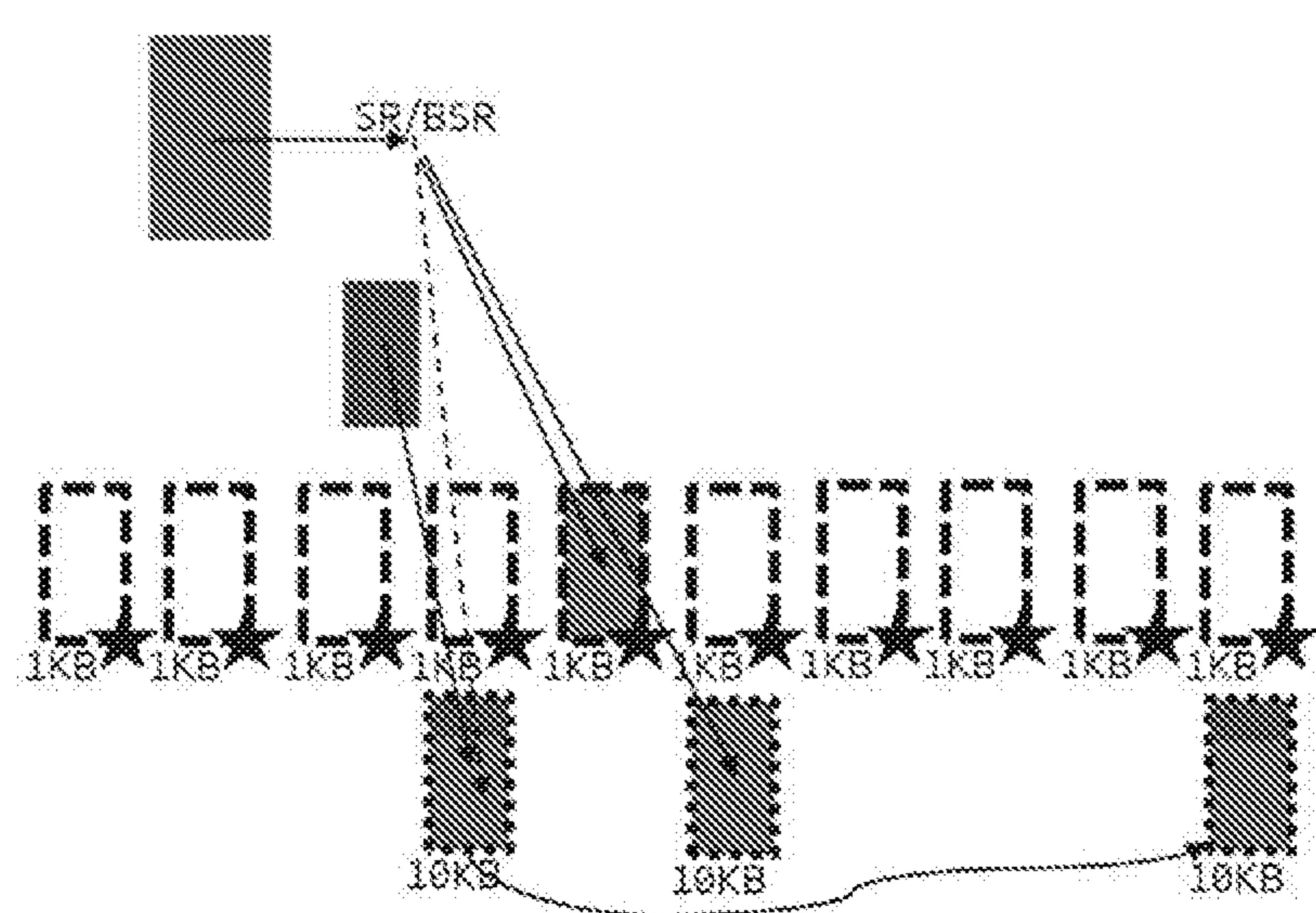


Fig. 81

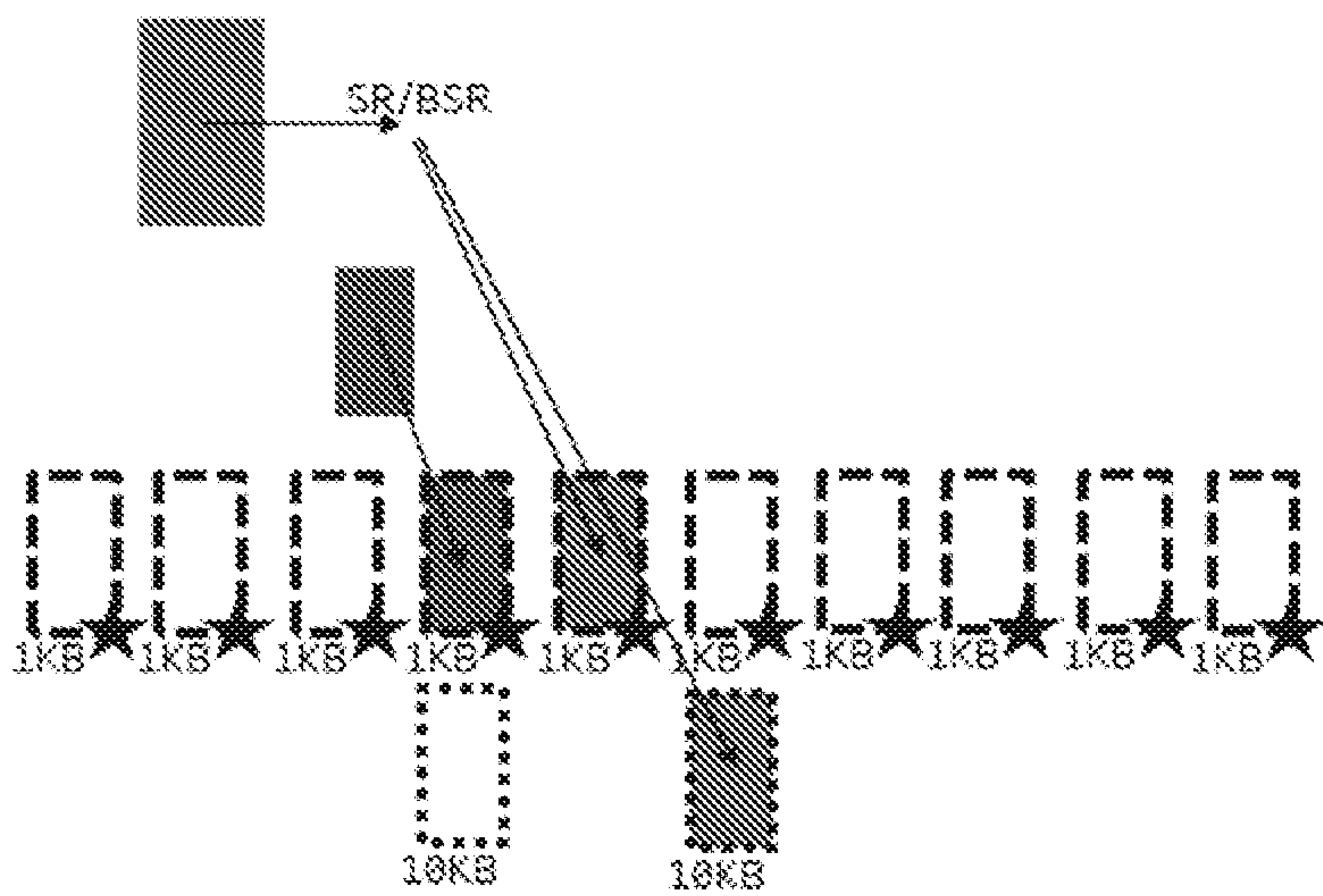


Fig. 82

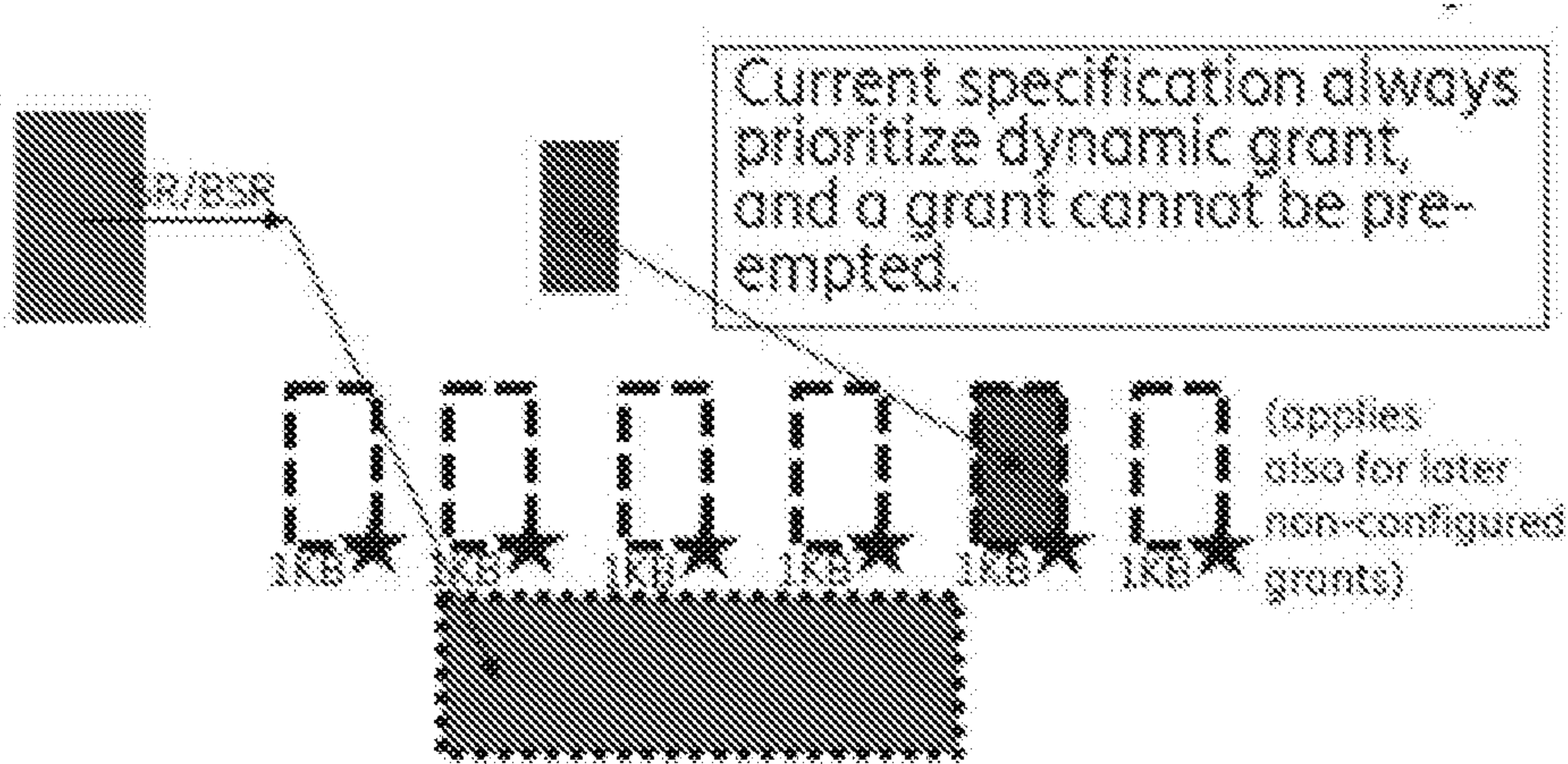


Fig. 83

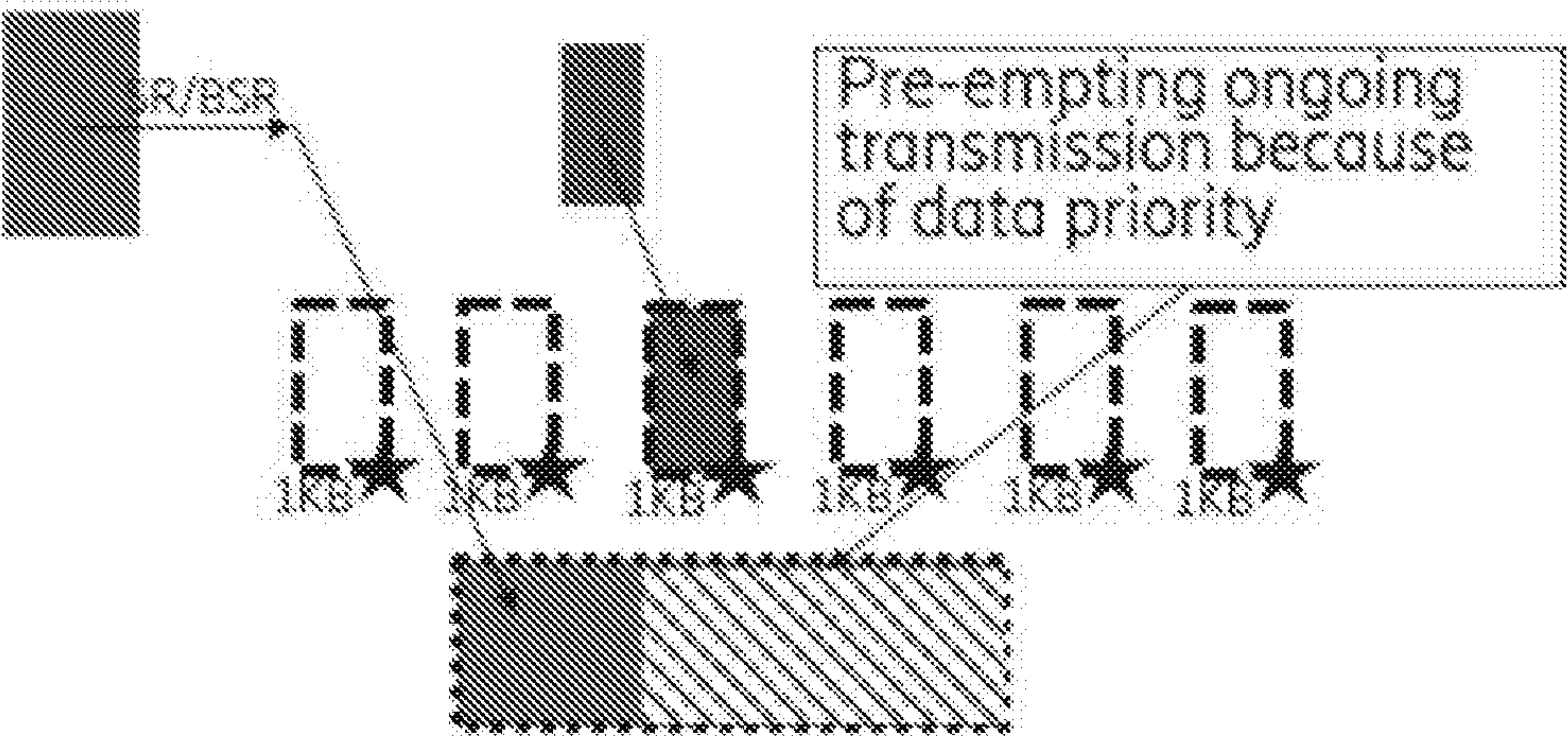


Fig. 84

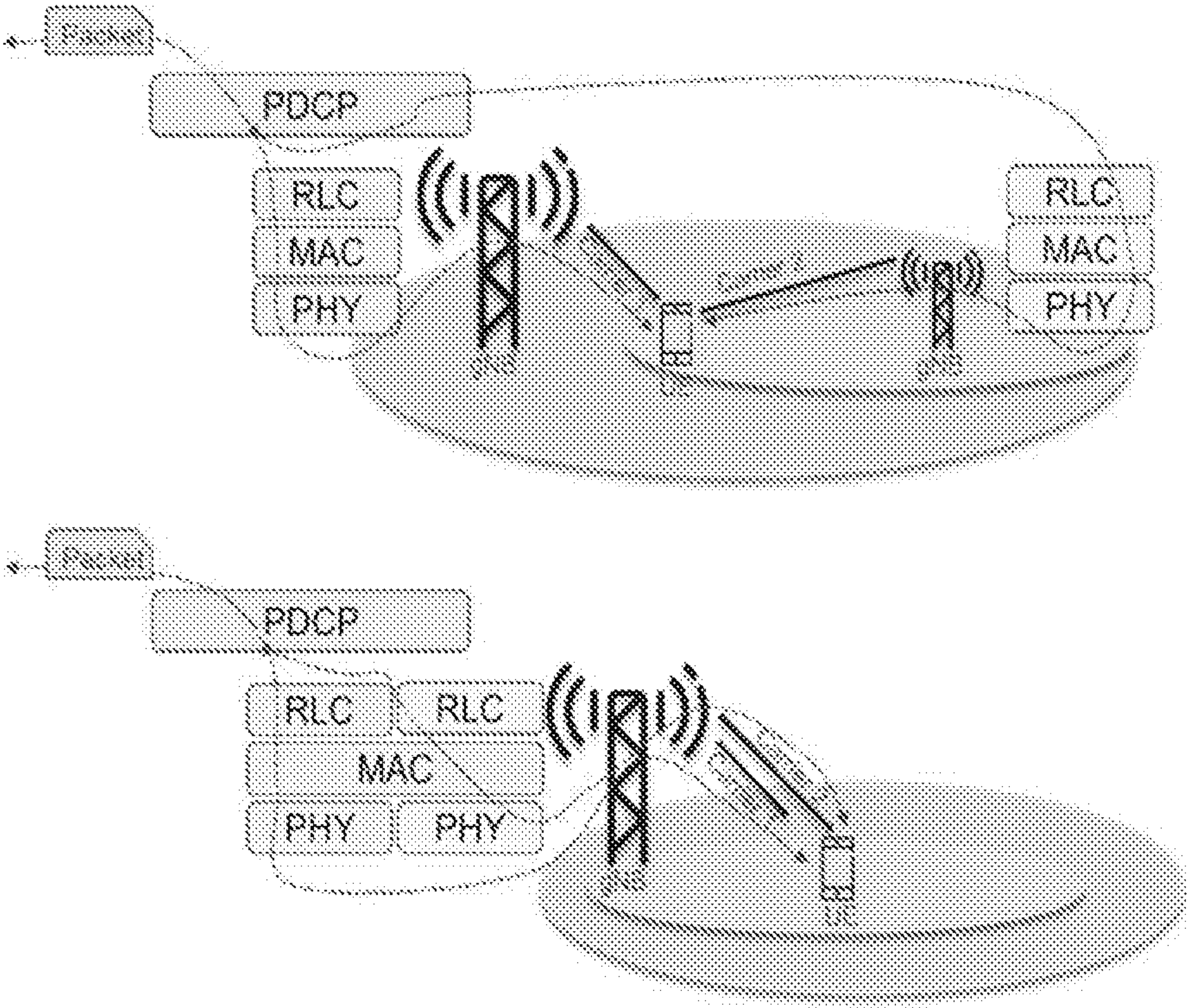


Fig. 85

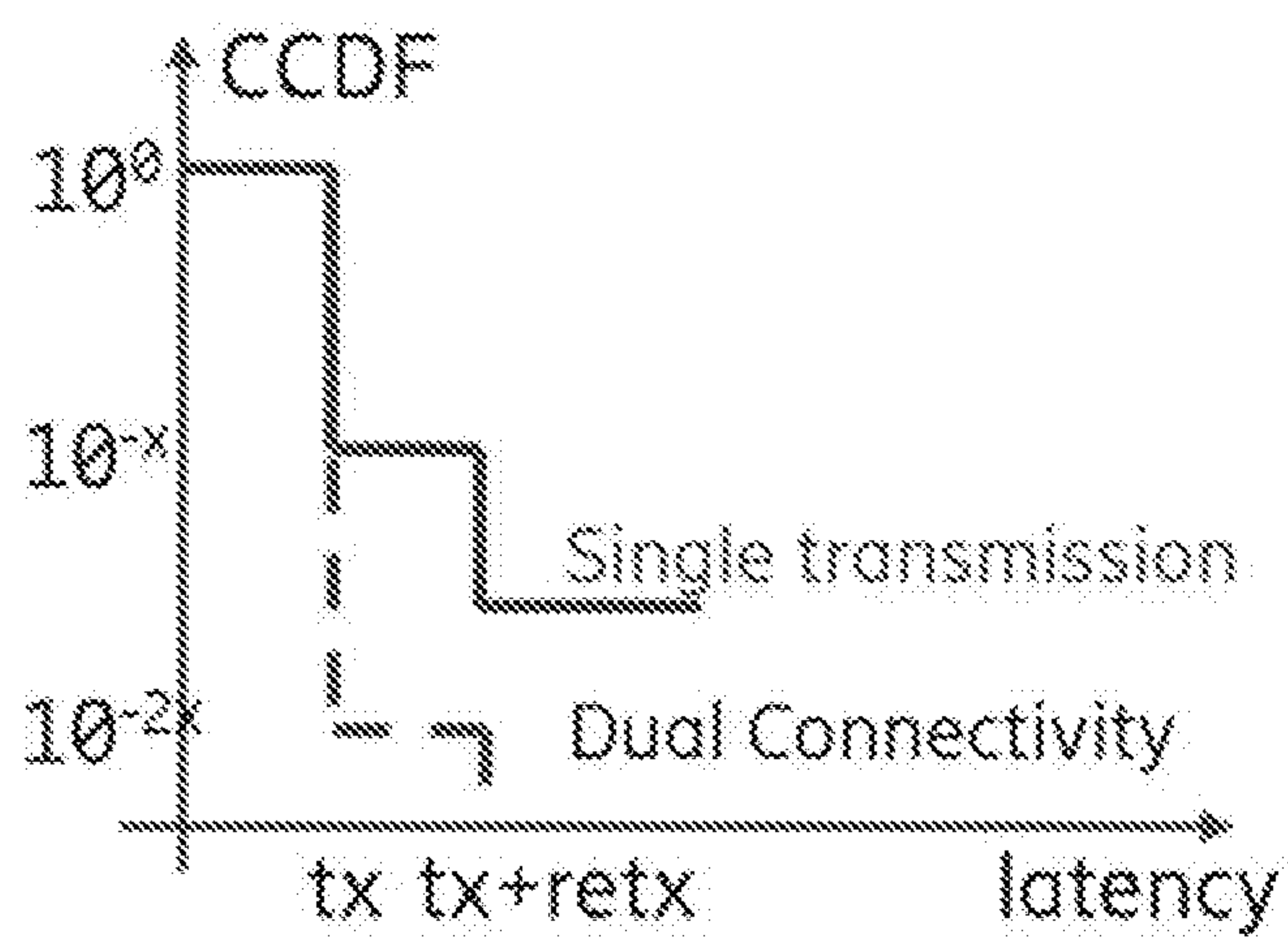


Fig. 86

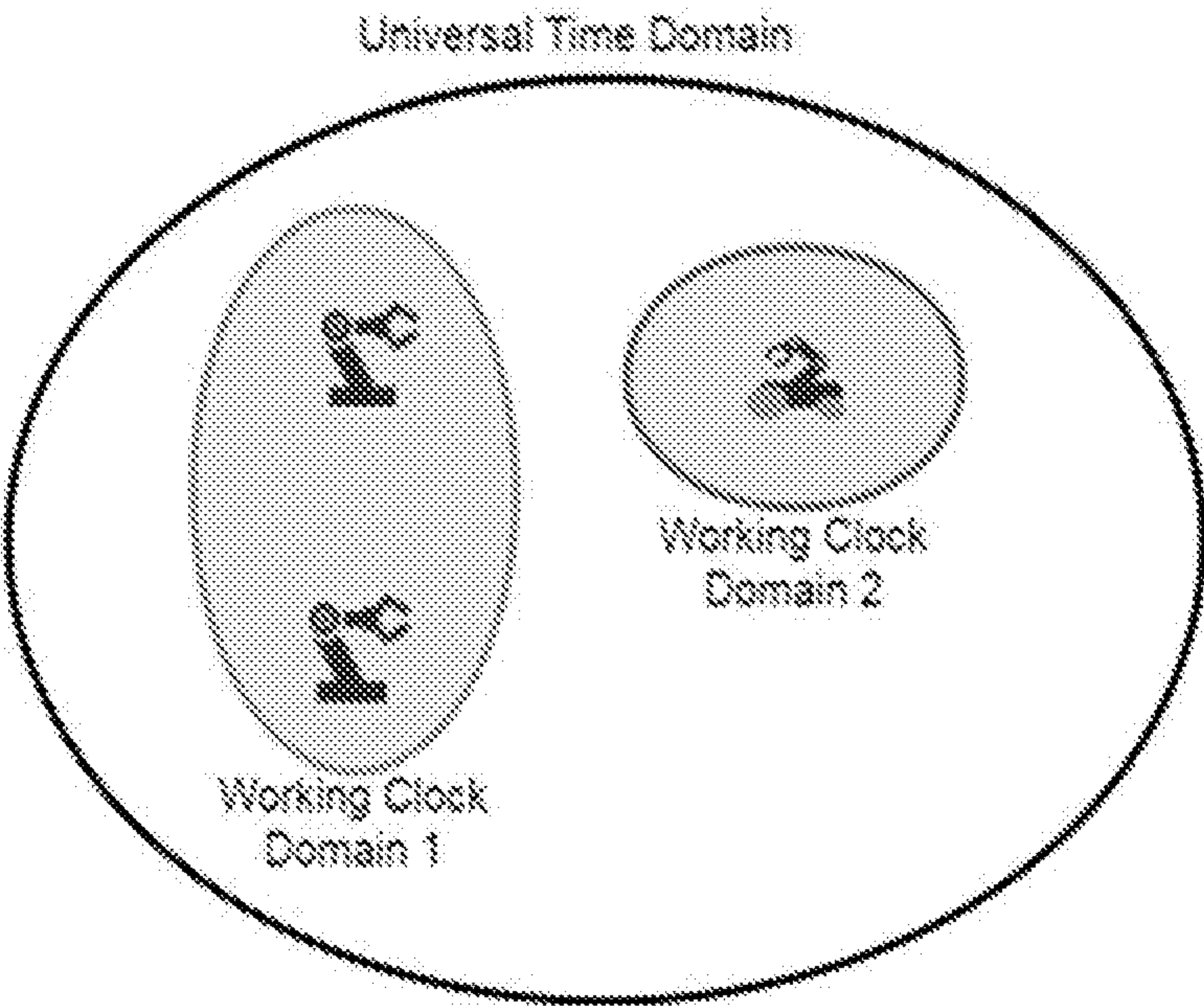


Fig. 87

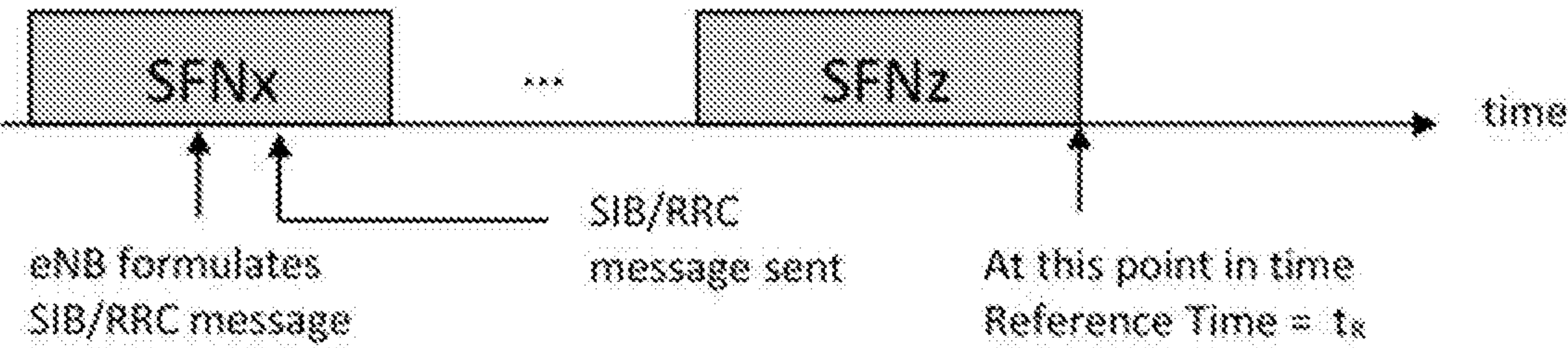


Fig. 88

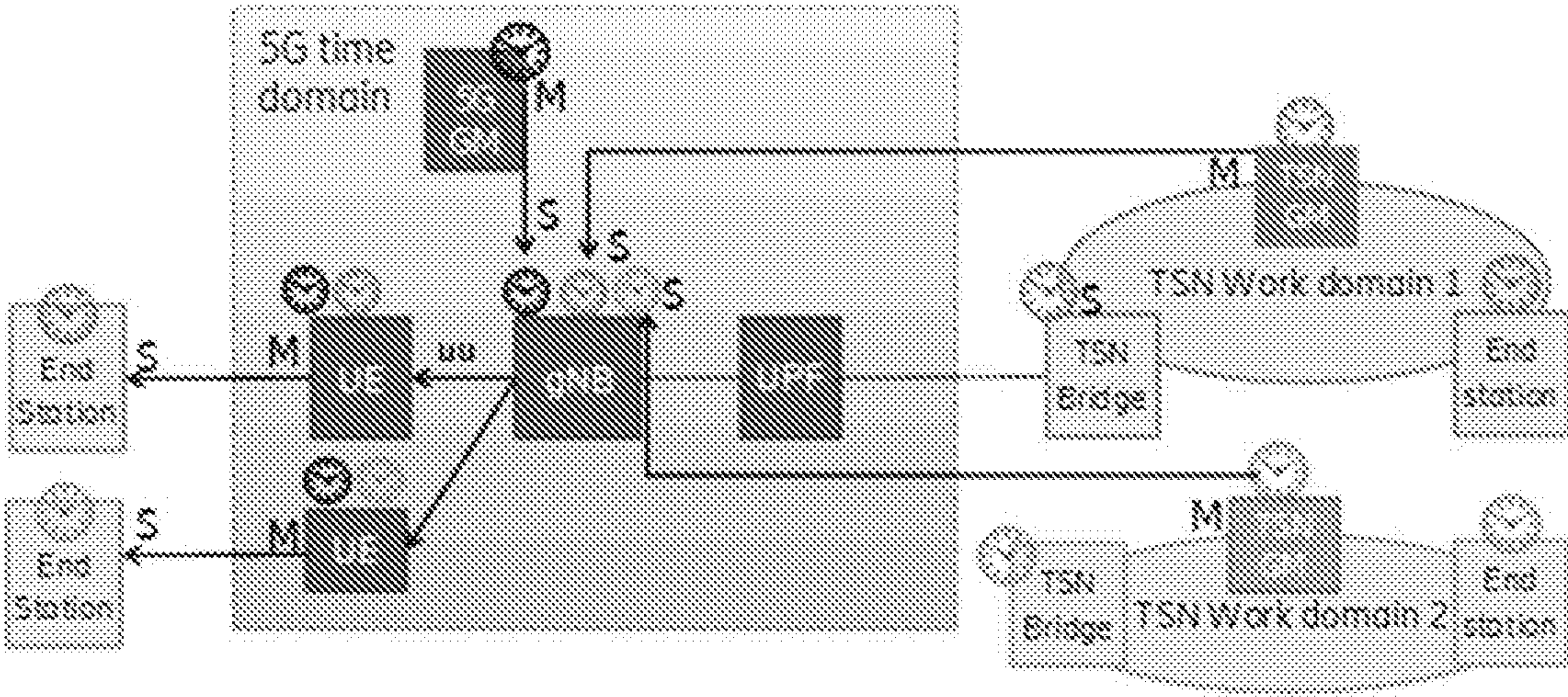


Fig. 89

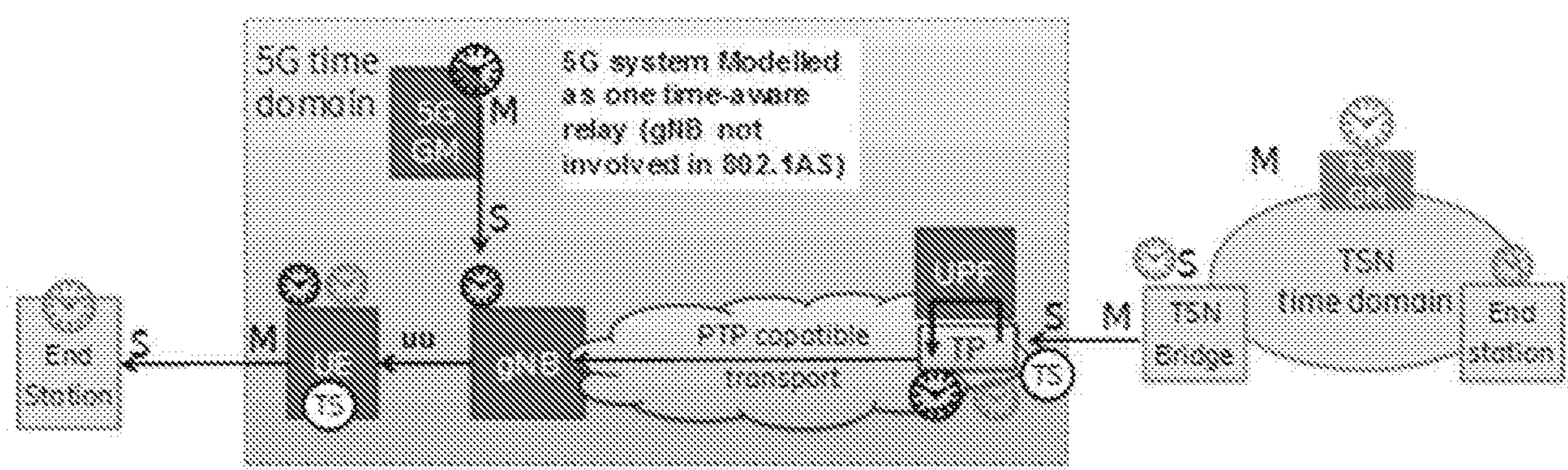


Fig. 90

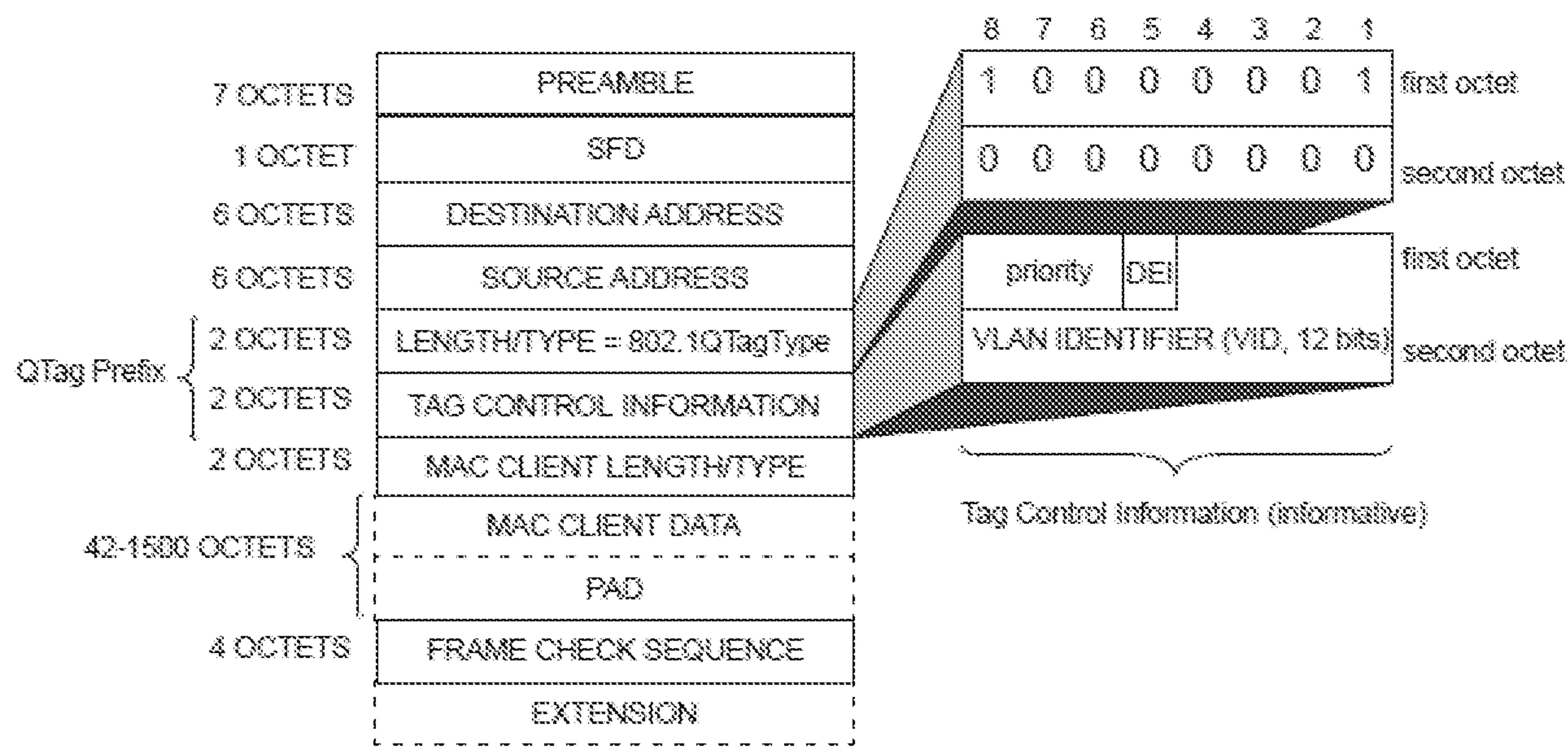


Fig. 91

Frame size (w/o FCS)	Gain with compression of header to 3 bytes (%) (src, dst, VID, E-type)	Frame size (w/o FCS)	Gain with compression of header to 5 bytes (%) (src, dst, VID, E-type)
64	23.44	64	20.31
128	11.72	128	10.16
256	5.86	256	5.08
512	2.93	512	2.54
1024	1.46	1024	1.27
1518	0.99	1518	0.86

Fig. 92

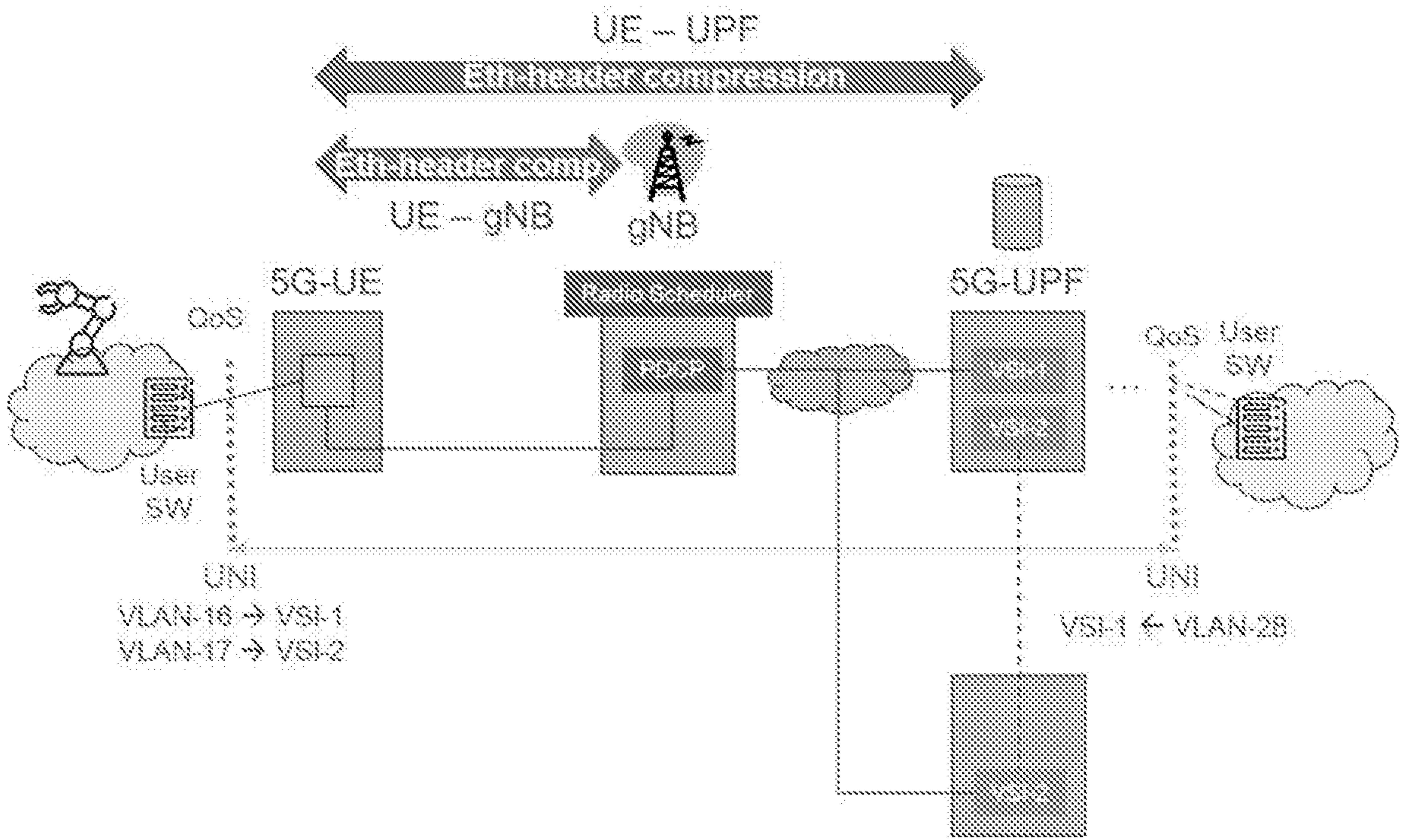


Fig. 93

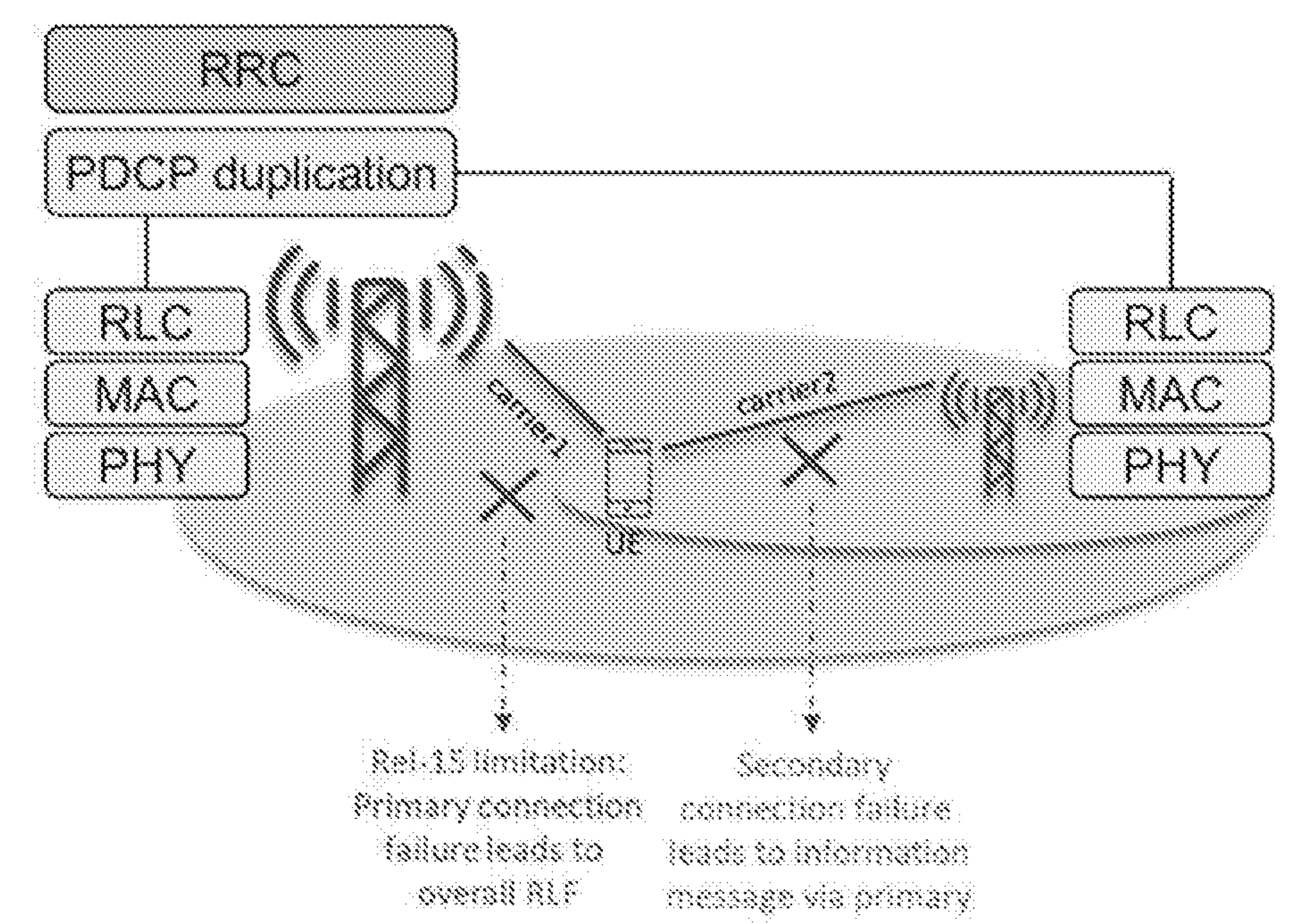


Fig. 94

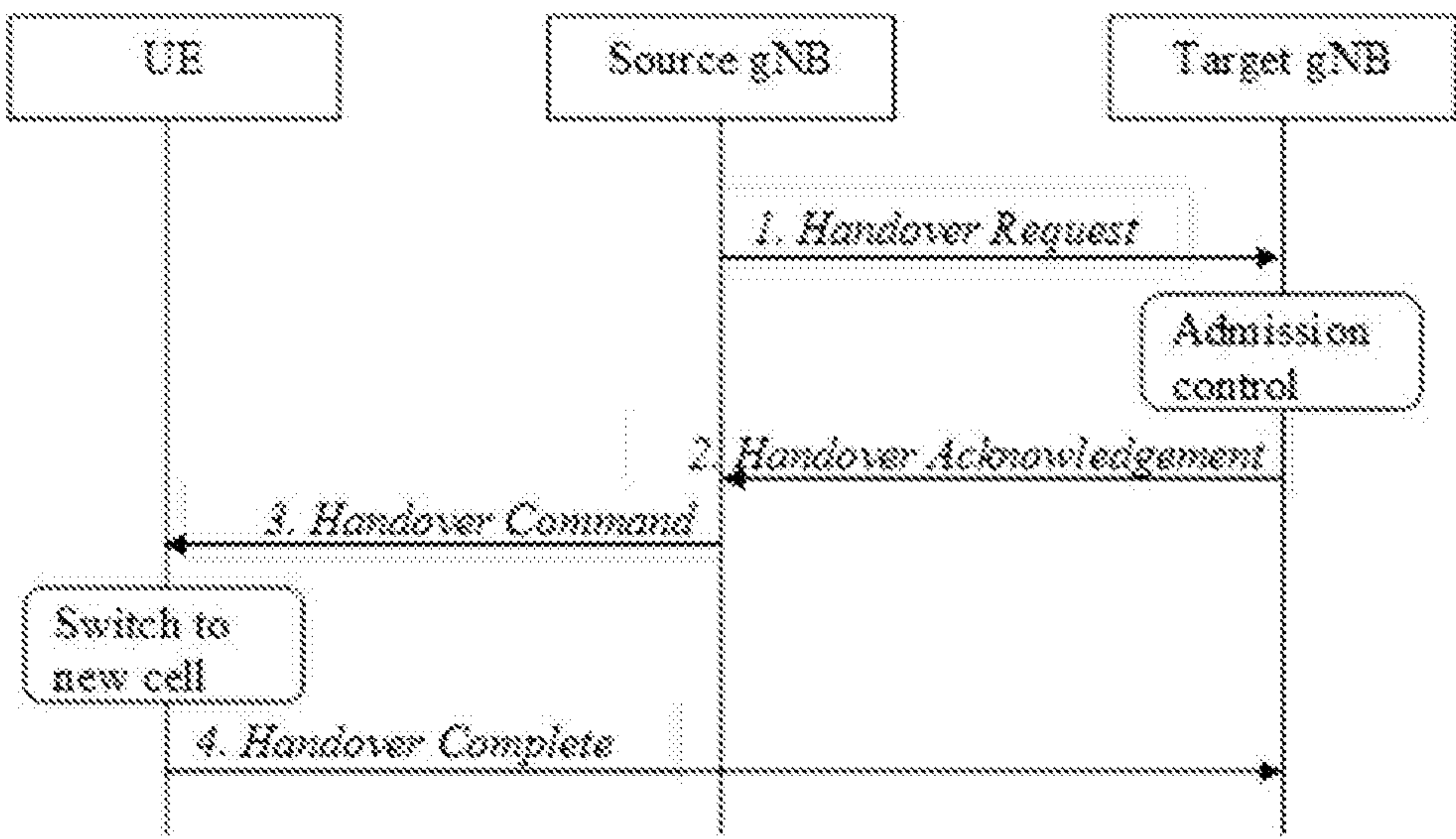


Fig. 95

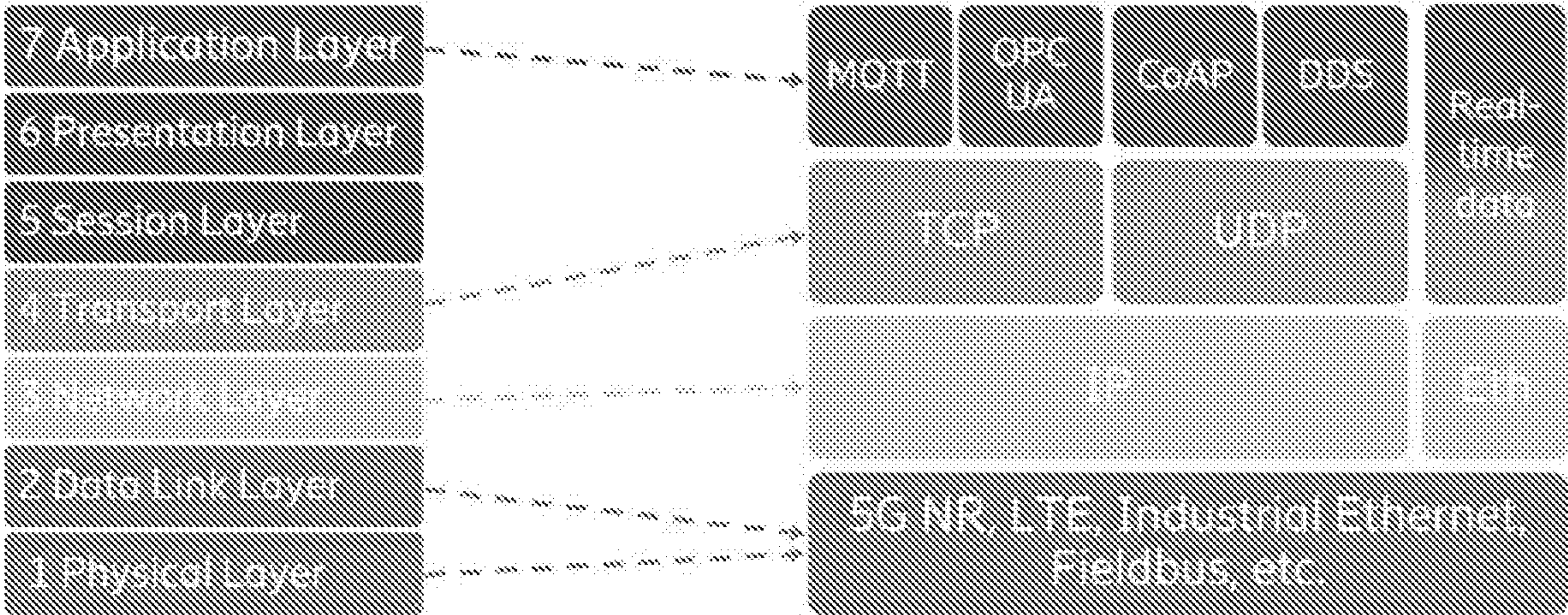


Fig. 96

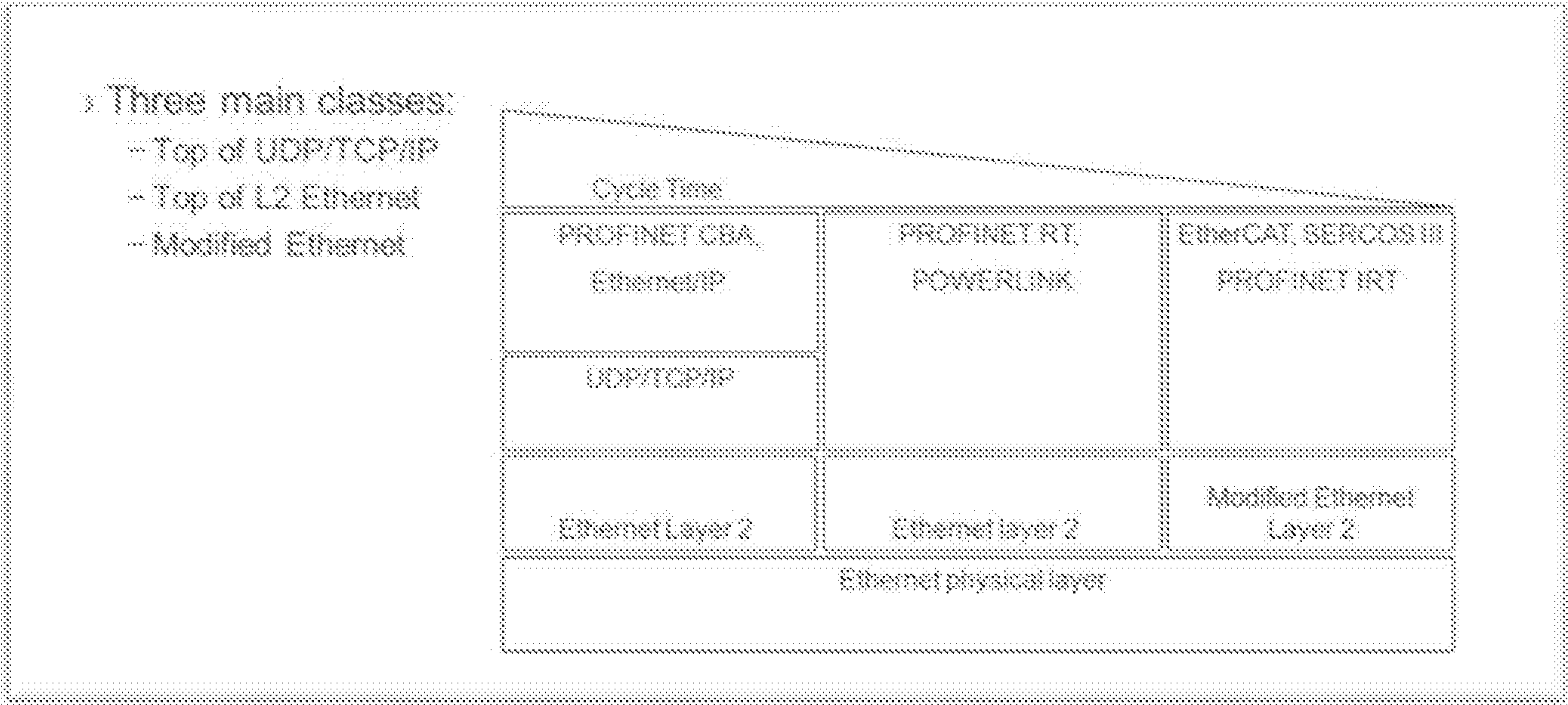


Fig. 97

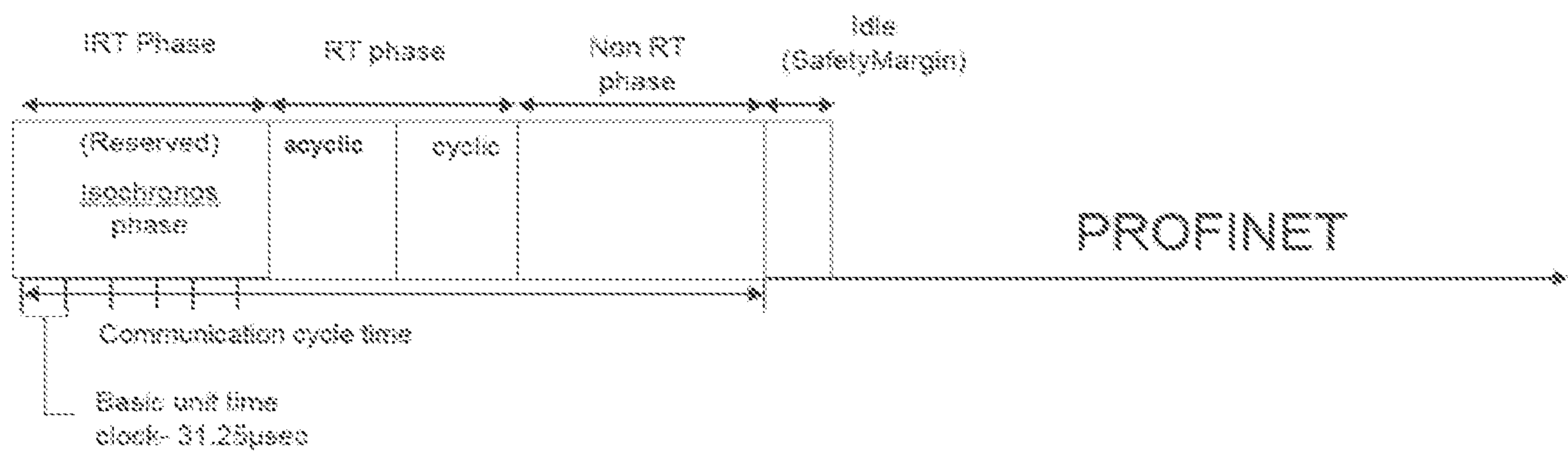


Fig. 98

56 Bits	8 Bits	6 Byte	6 Byte	2 byte	2 byte	36..1490 bytes	4 byte
Preamble	SYNCH	Dest Addr	Src Addr	Ether type	Frame ID	RT.-User data	FCS

Fig. 99

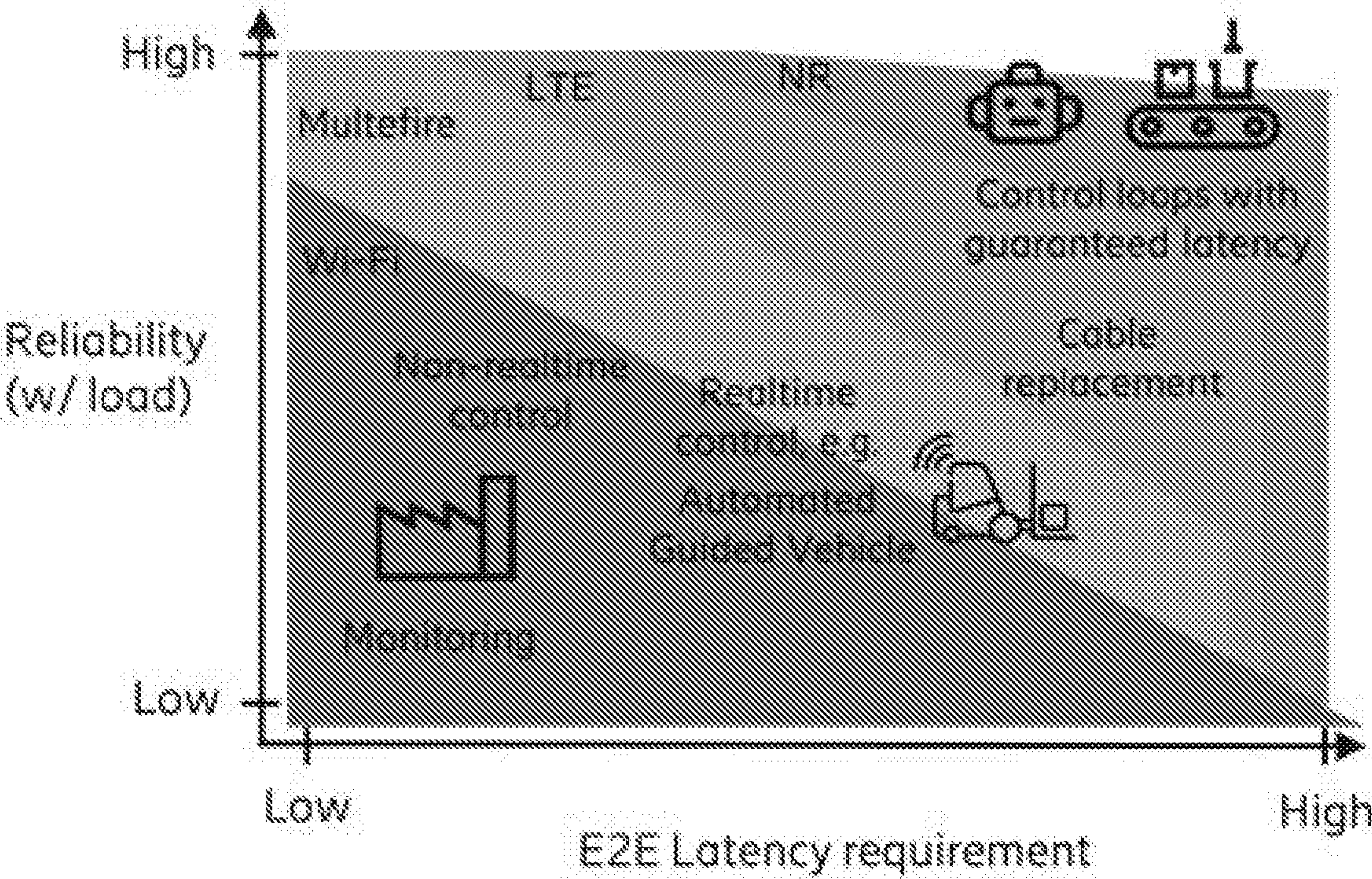


Fig. 100

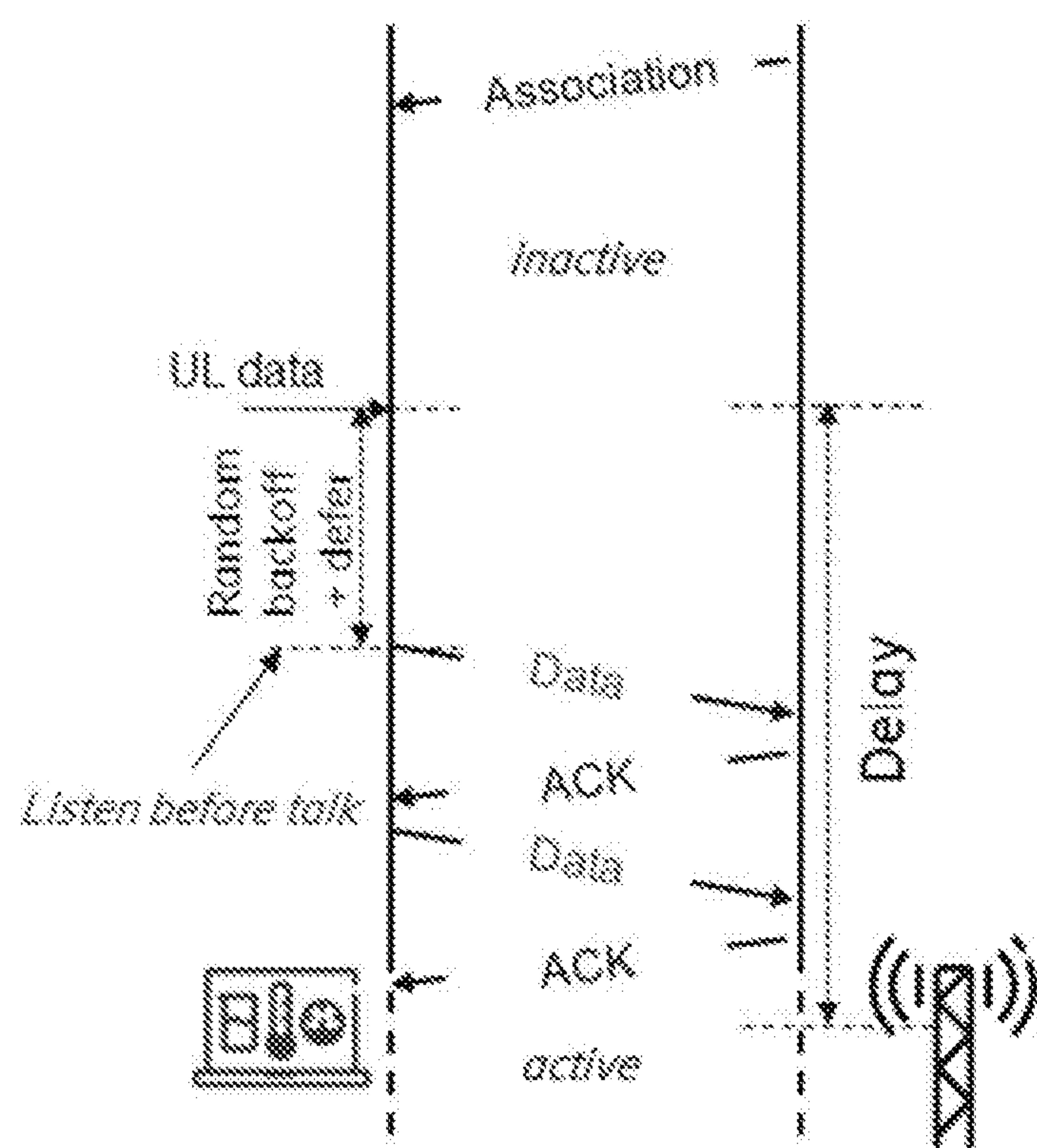


Fig. 101

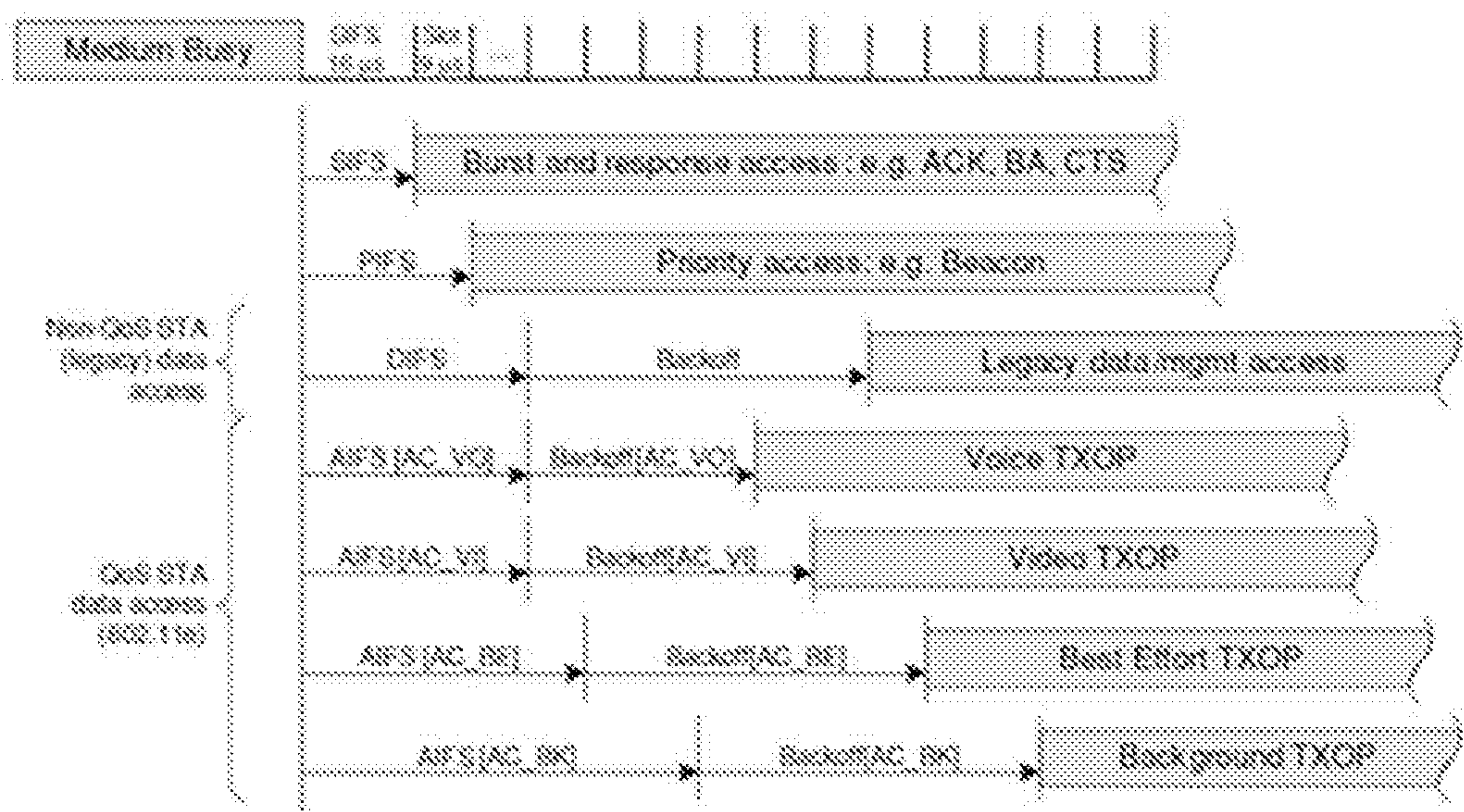
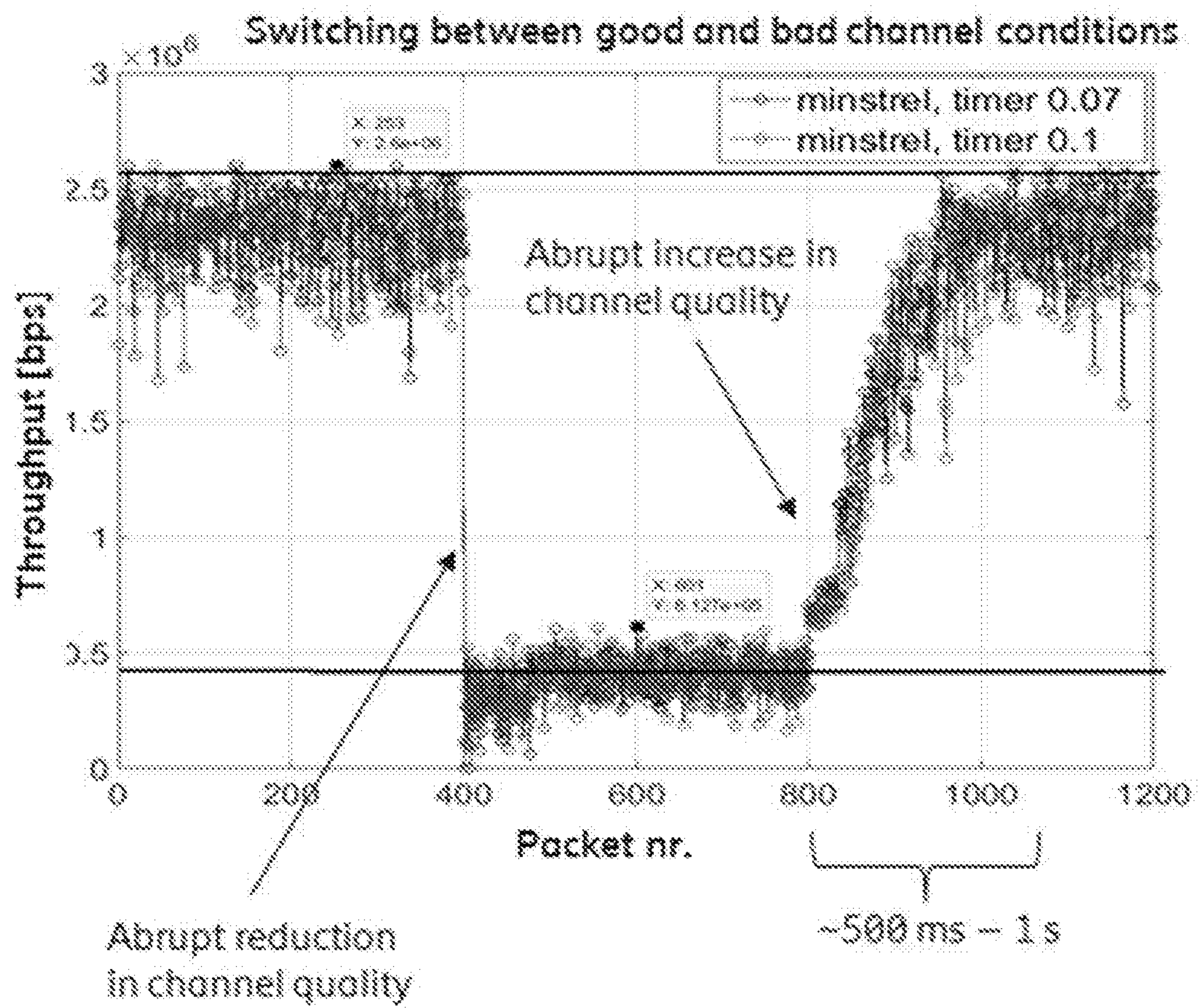


Fig. 102

**Fig. 103**

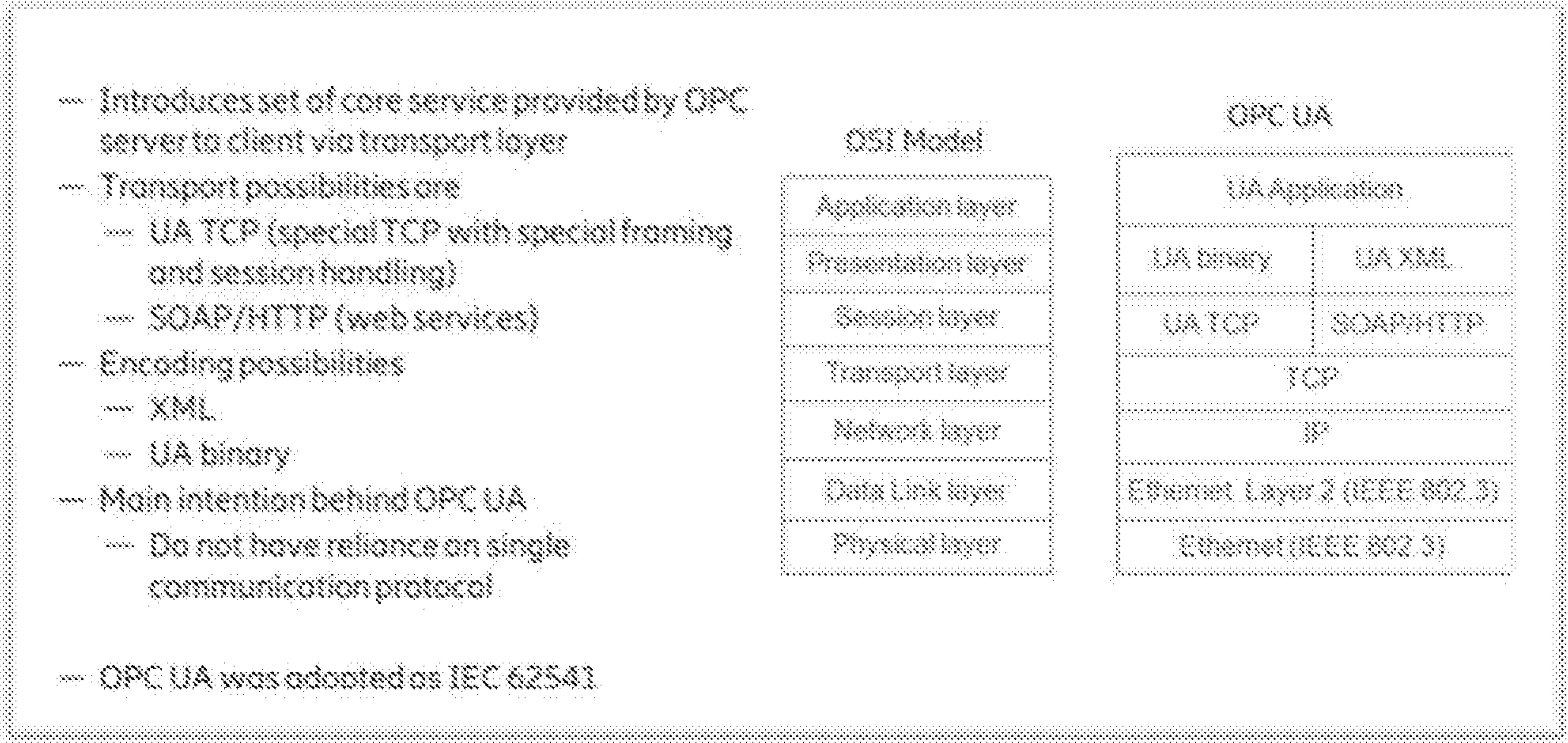


Fig. 104

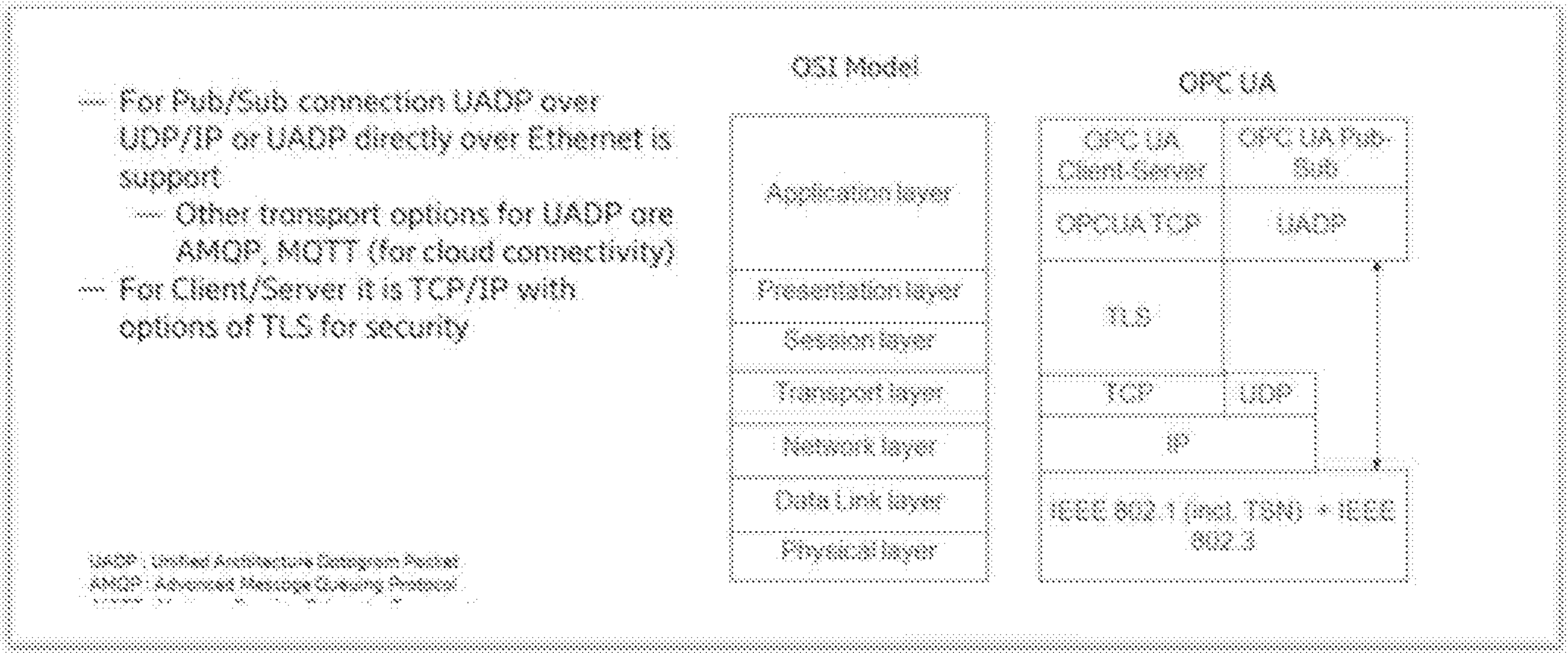


Fig. 105

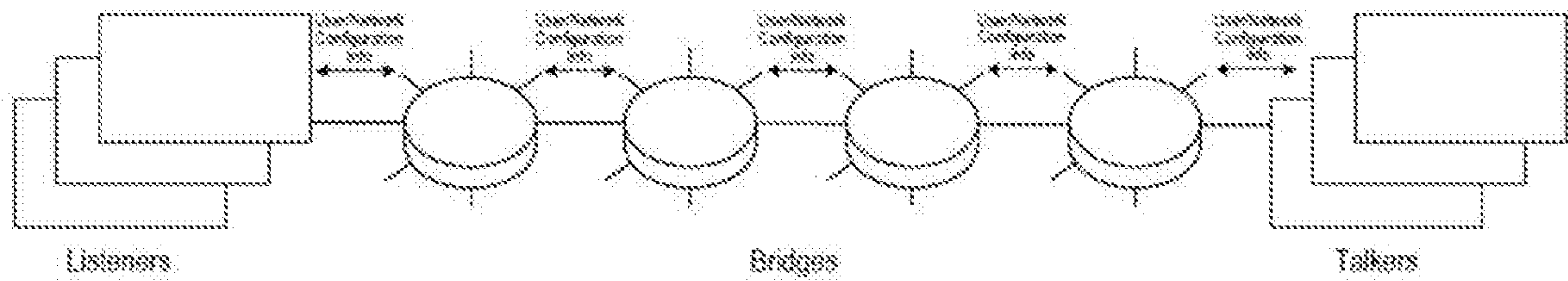


Fig. 106

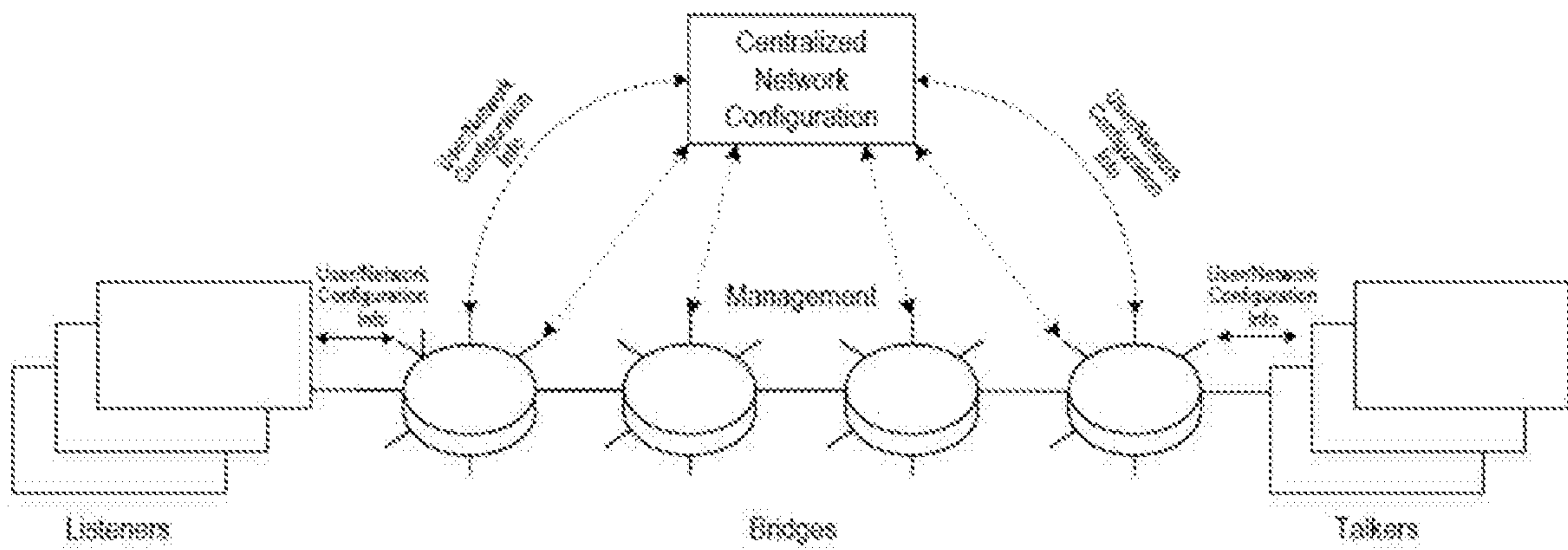


Fig. 107

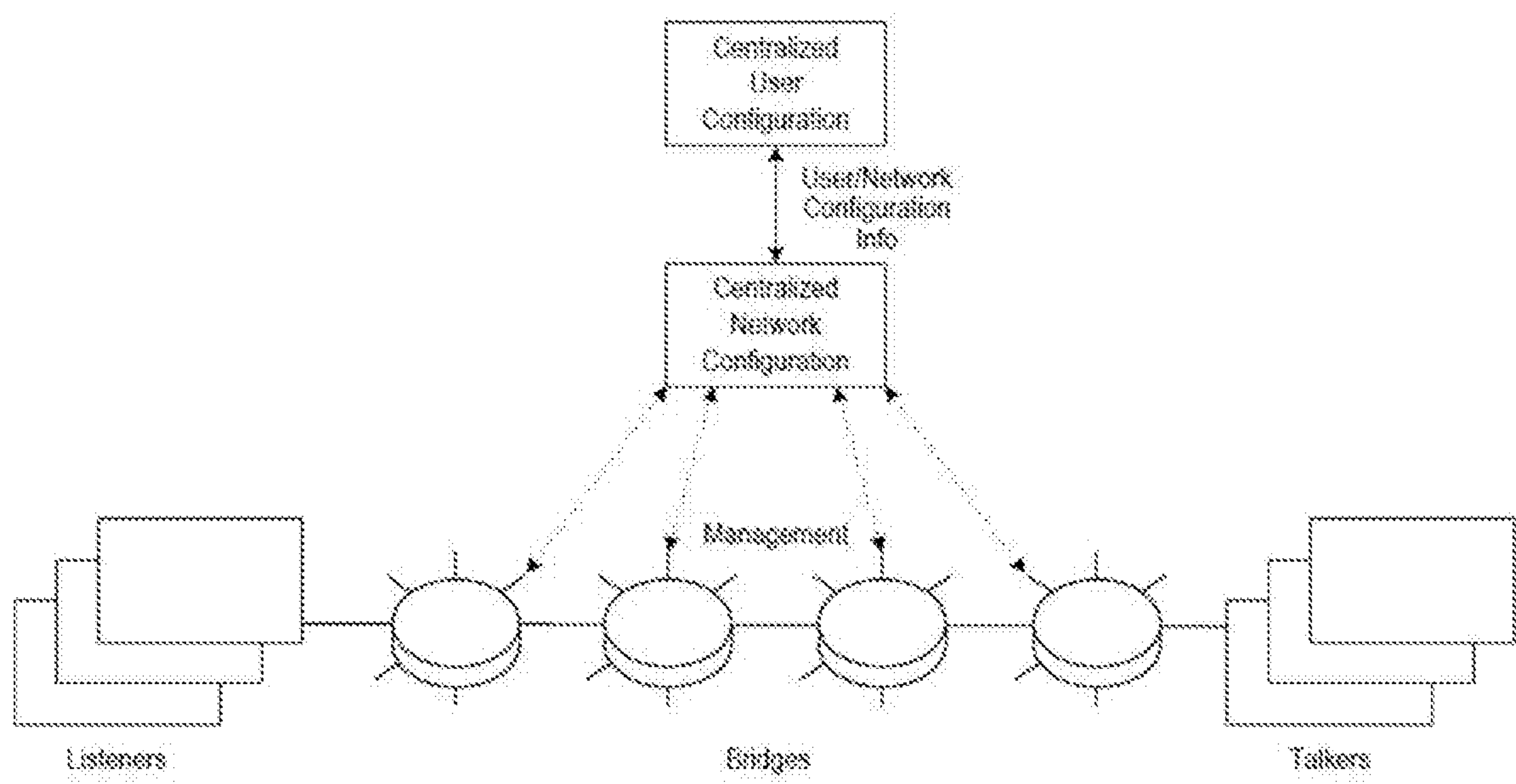


Fig. 108

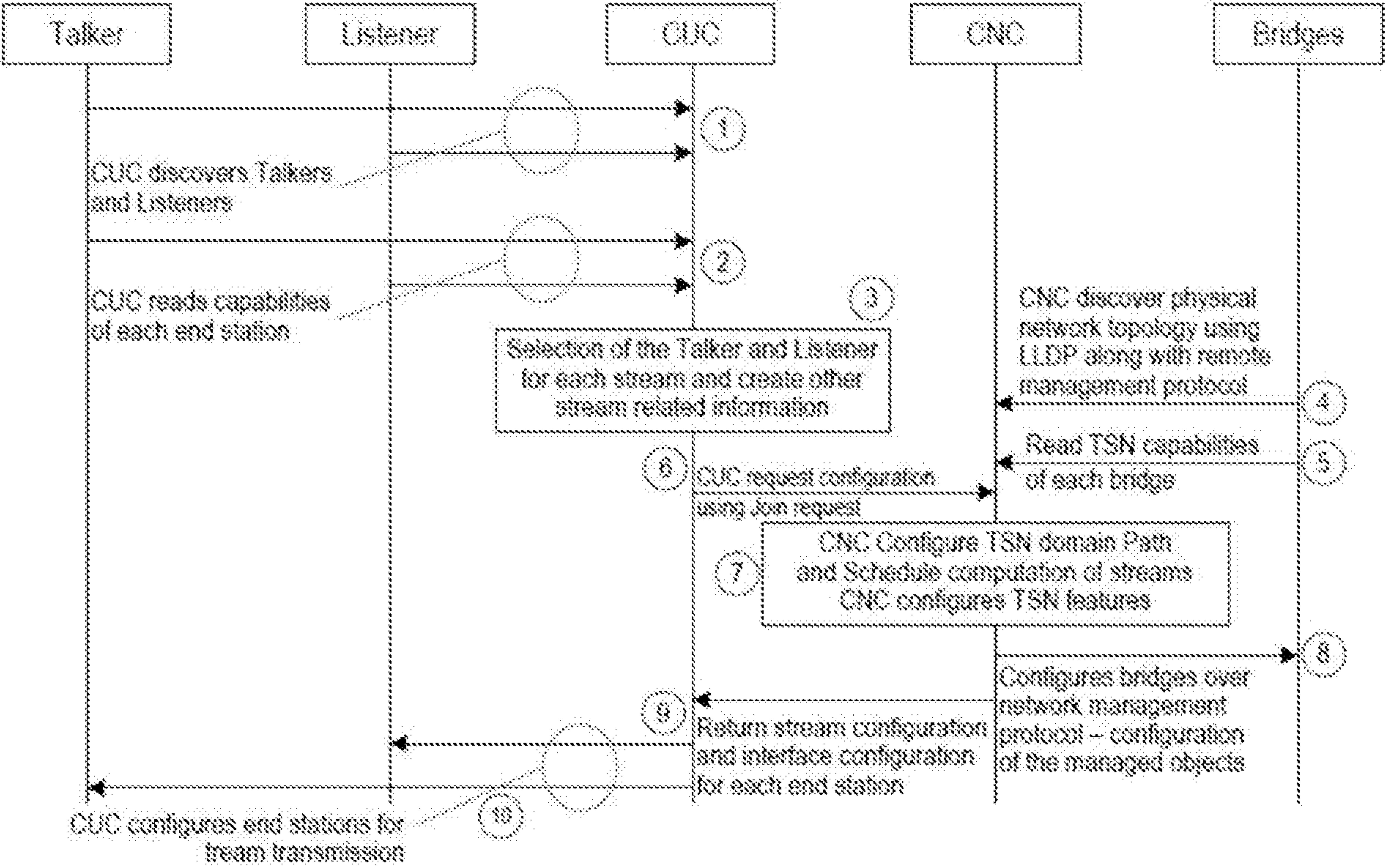
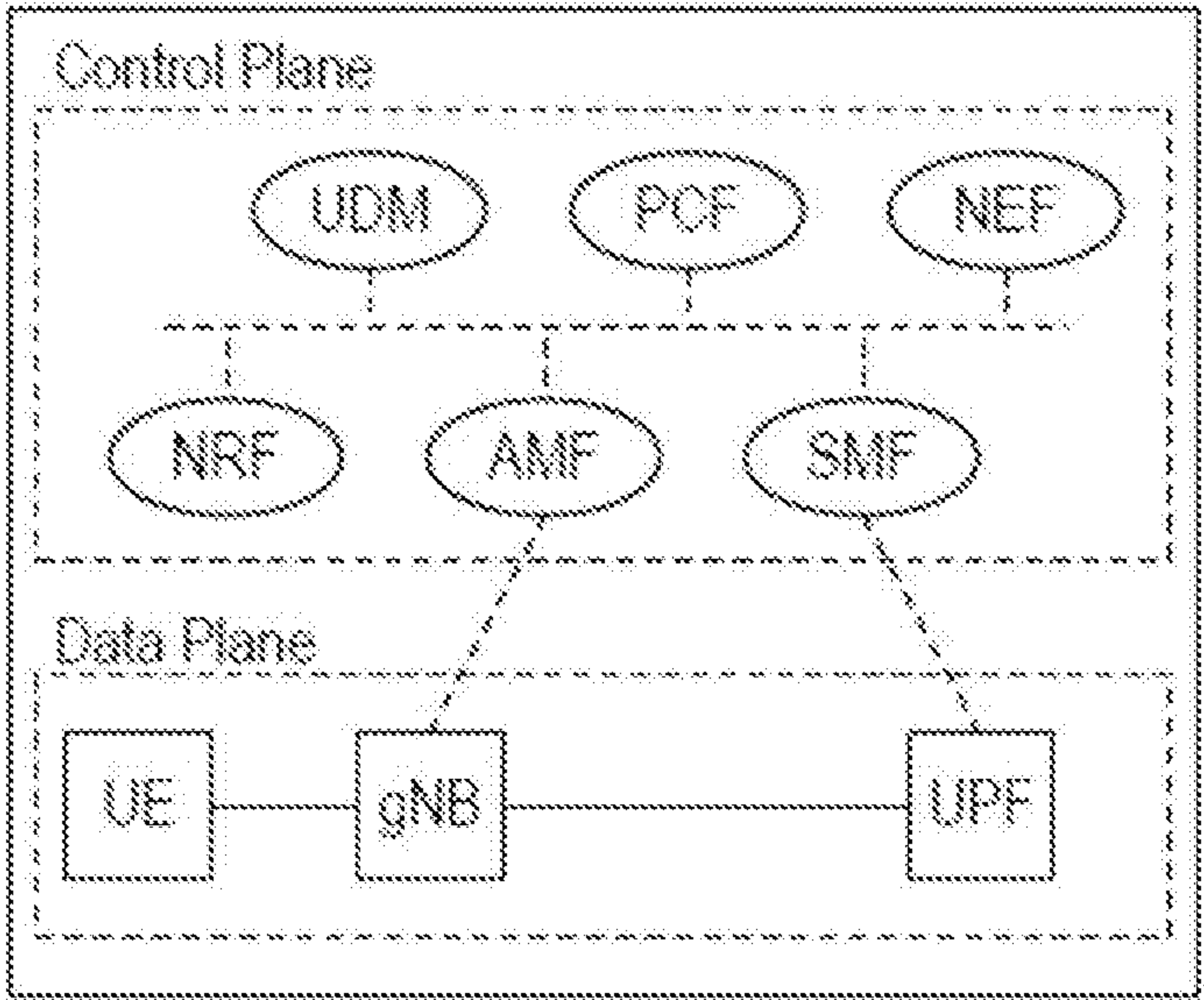


Fig. 109



UPF: User Plane Function
NRF: Network Repository Function
AMF: Access Management Function
SMF: Session Management Function
NEF: Network Exposure Function
PCF: Policy Control Function
UDM: Unified Data Management

Fig. 110

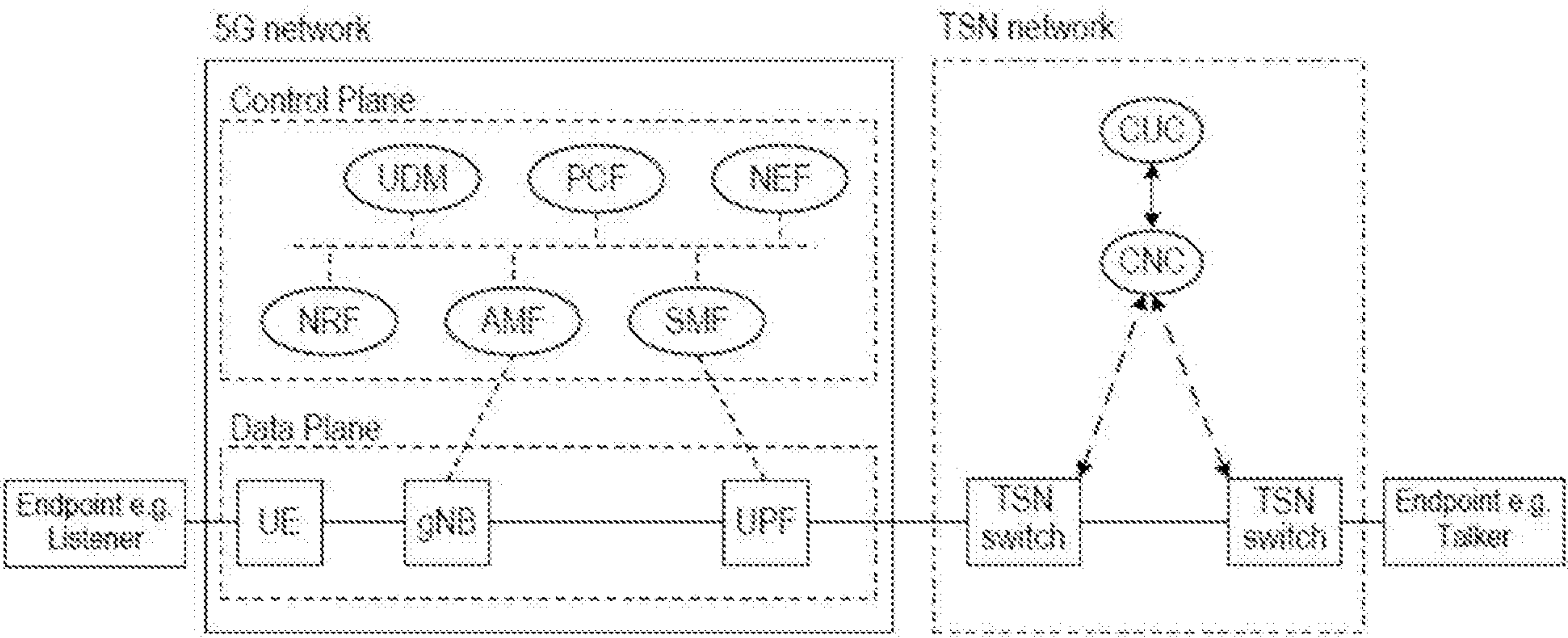


Fig. 111

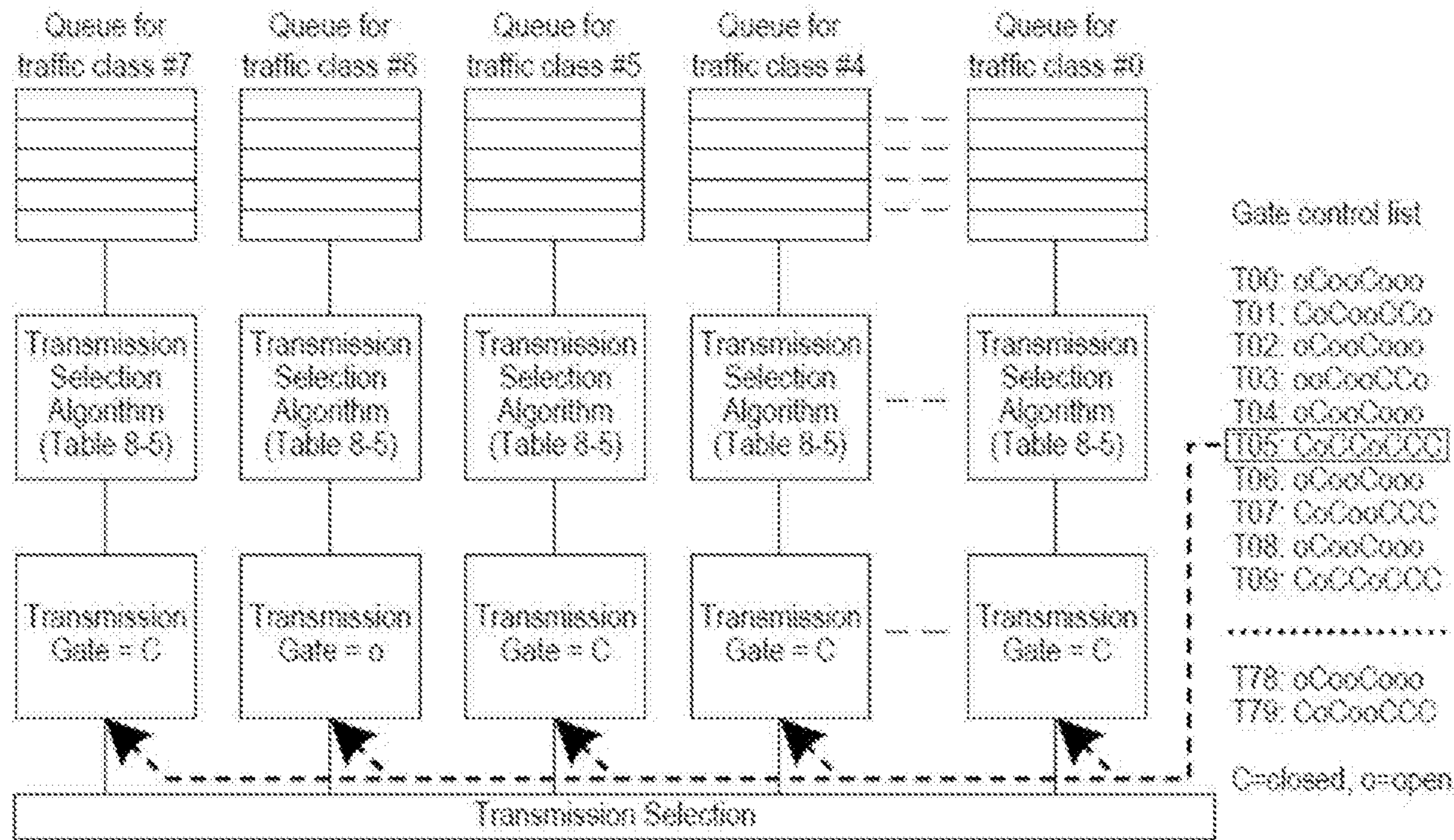


Fig. 112

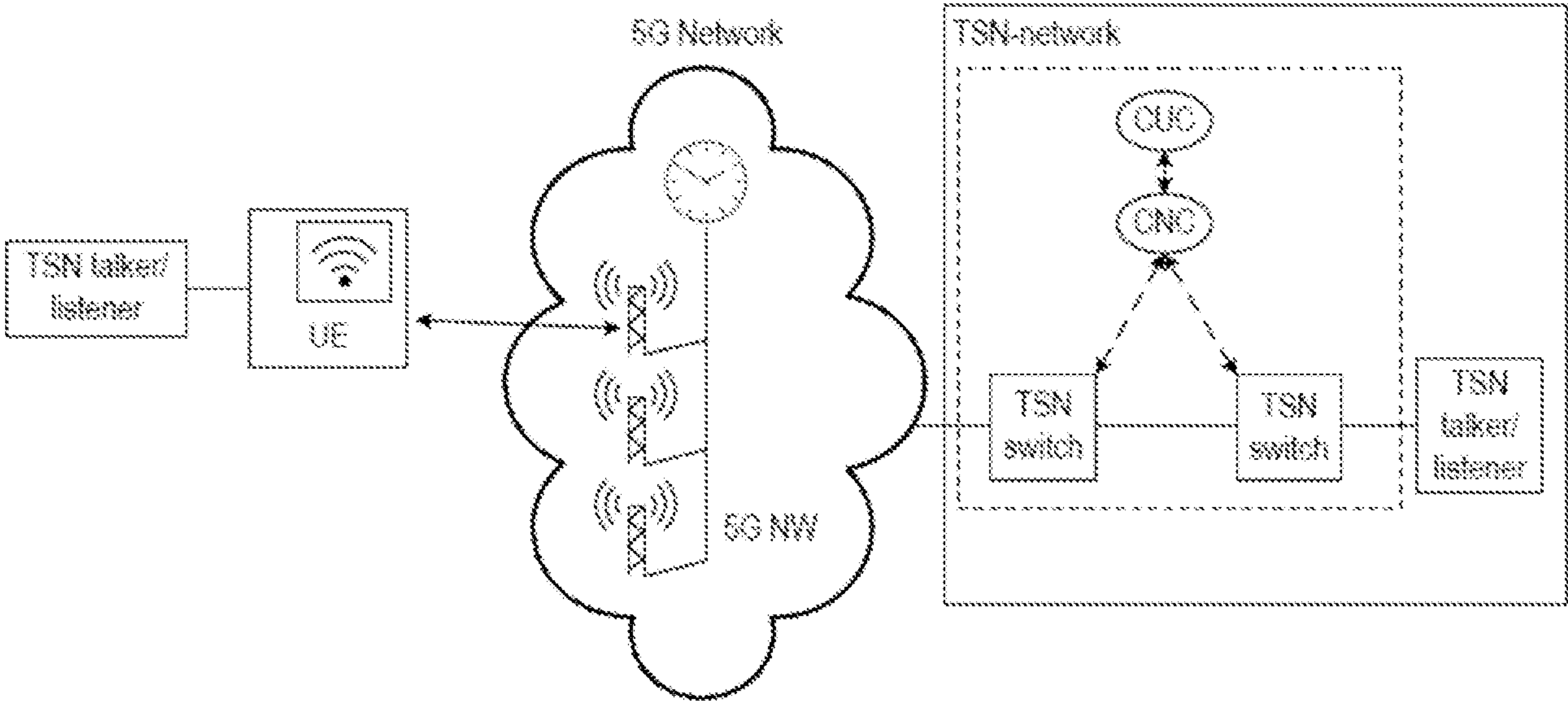


Fig. 113

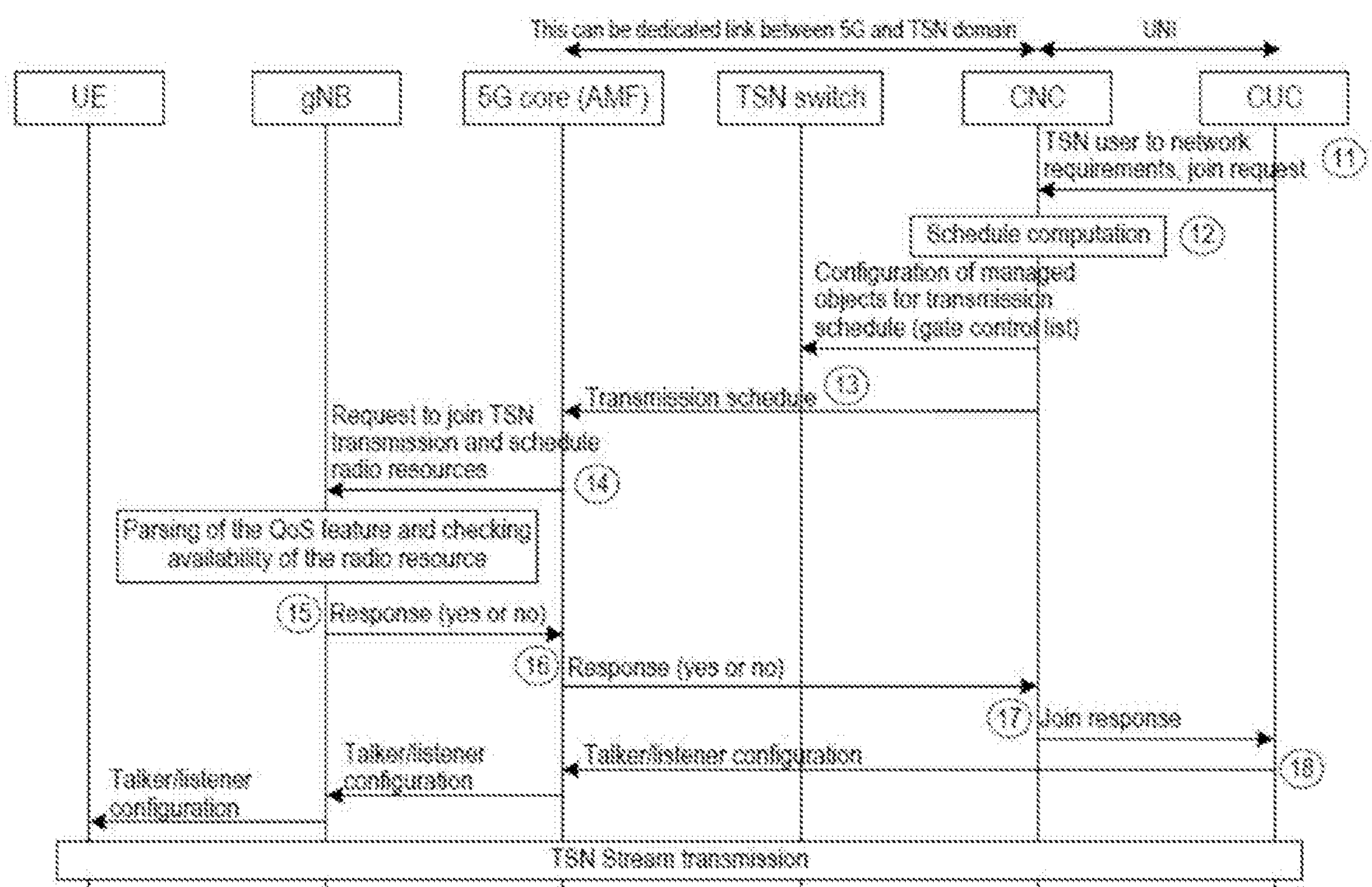


Fig. 114

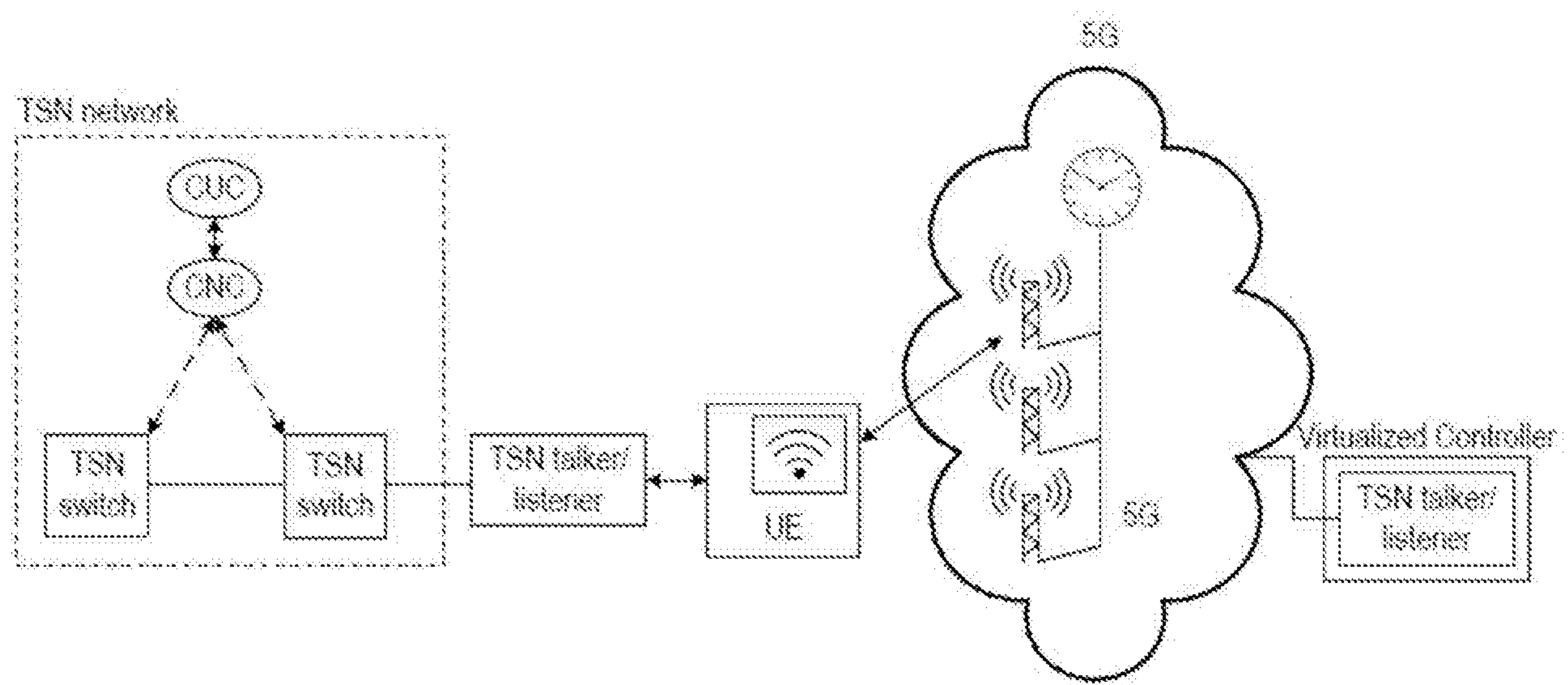


Fig. 115

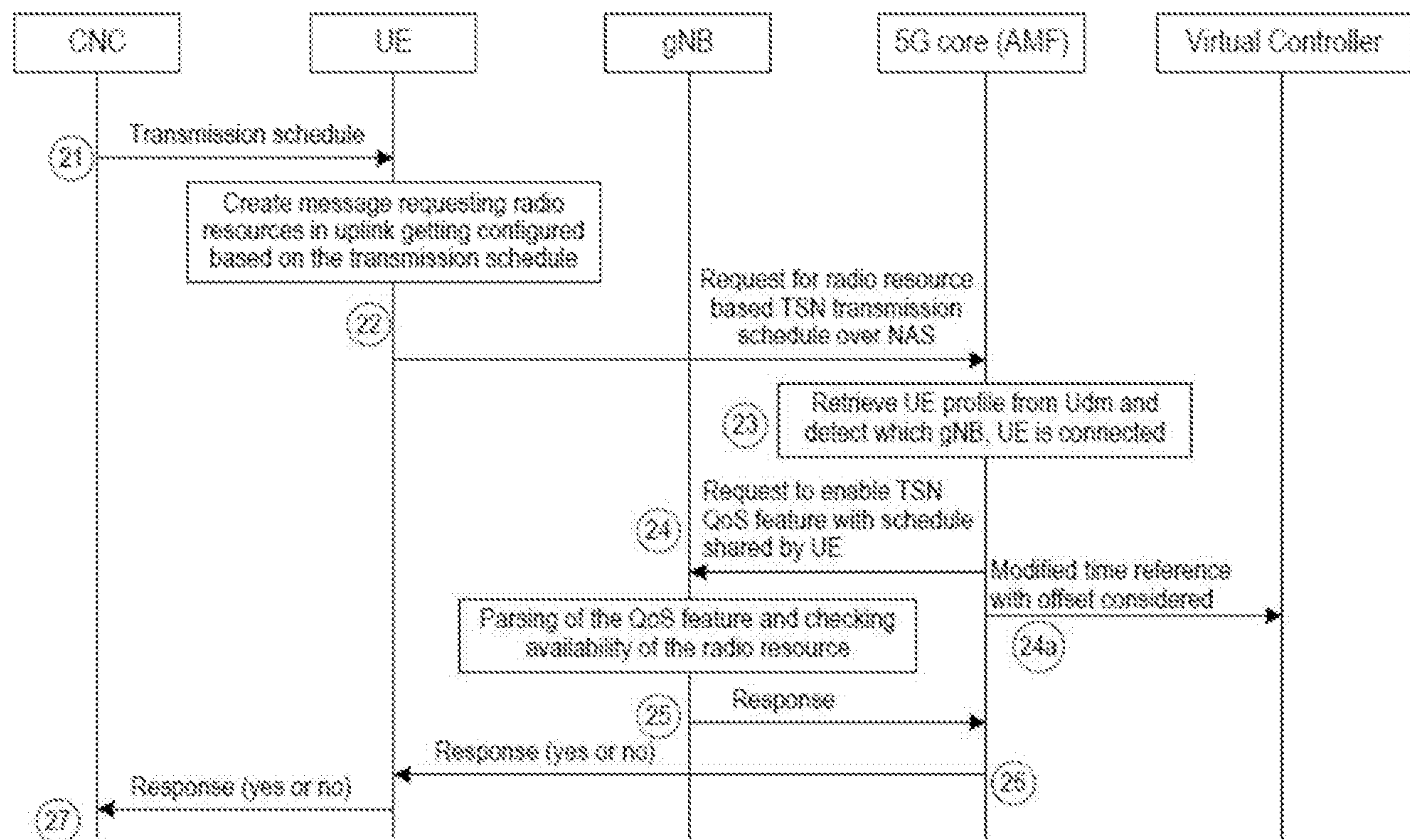
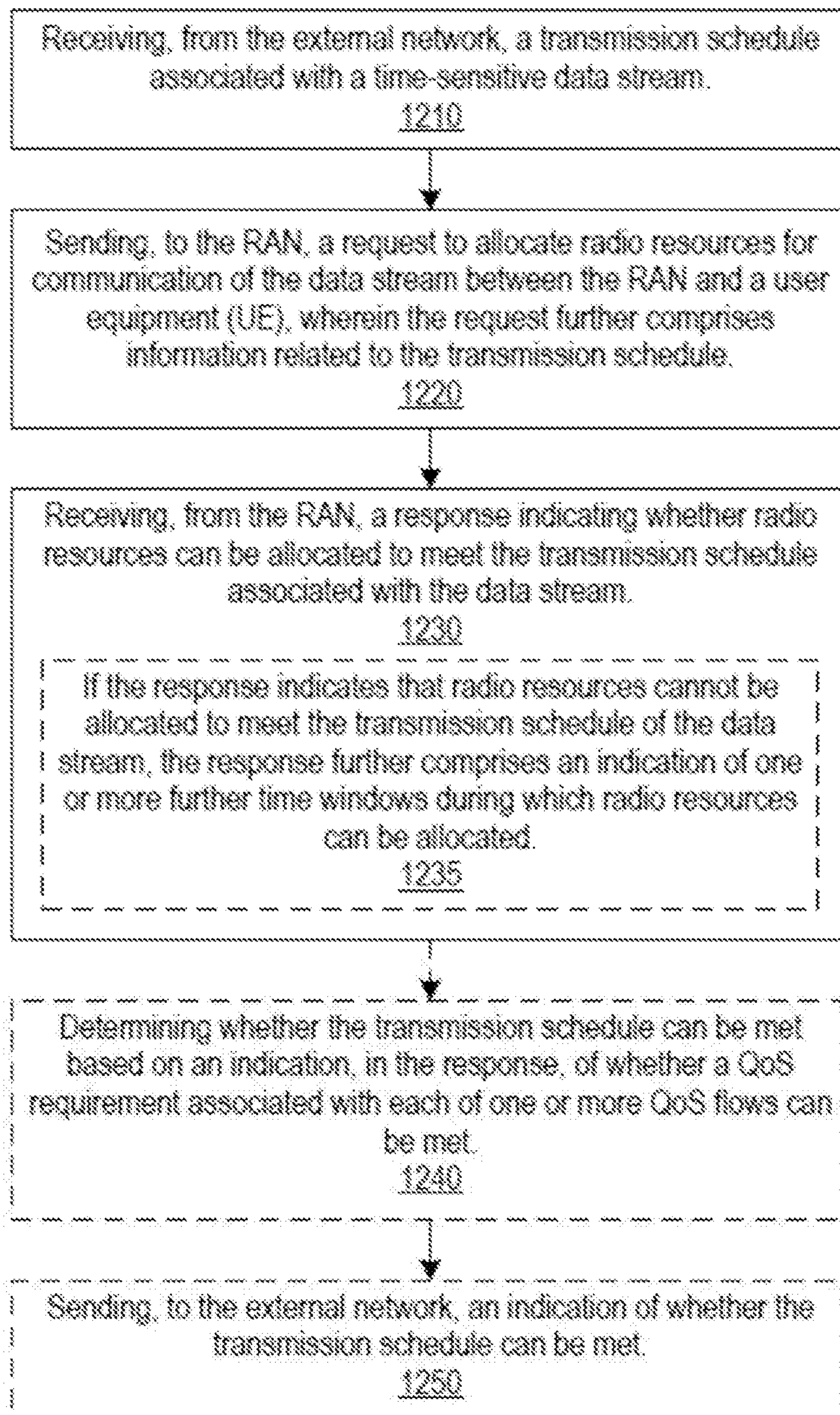
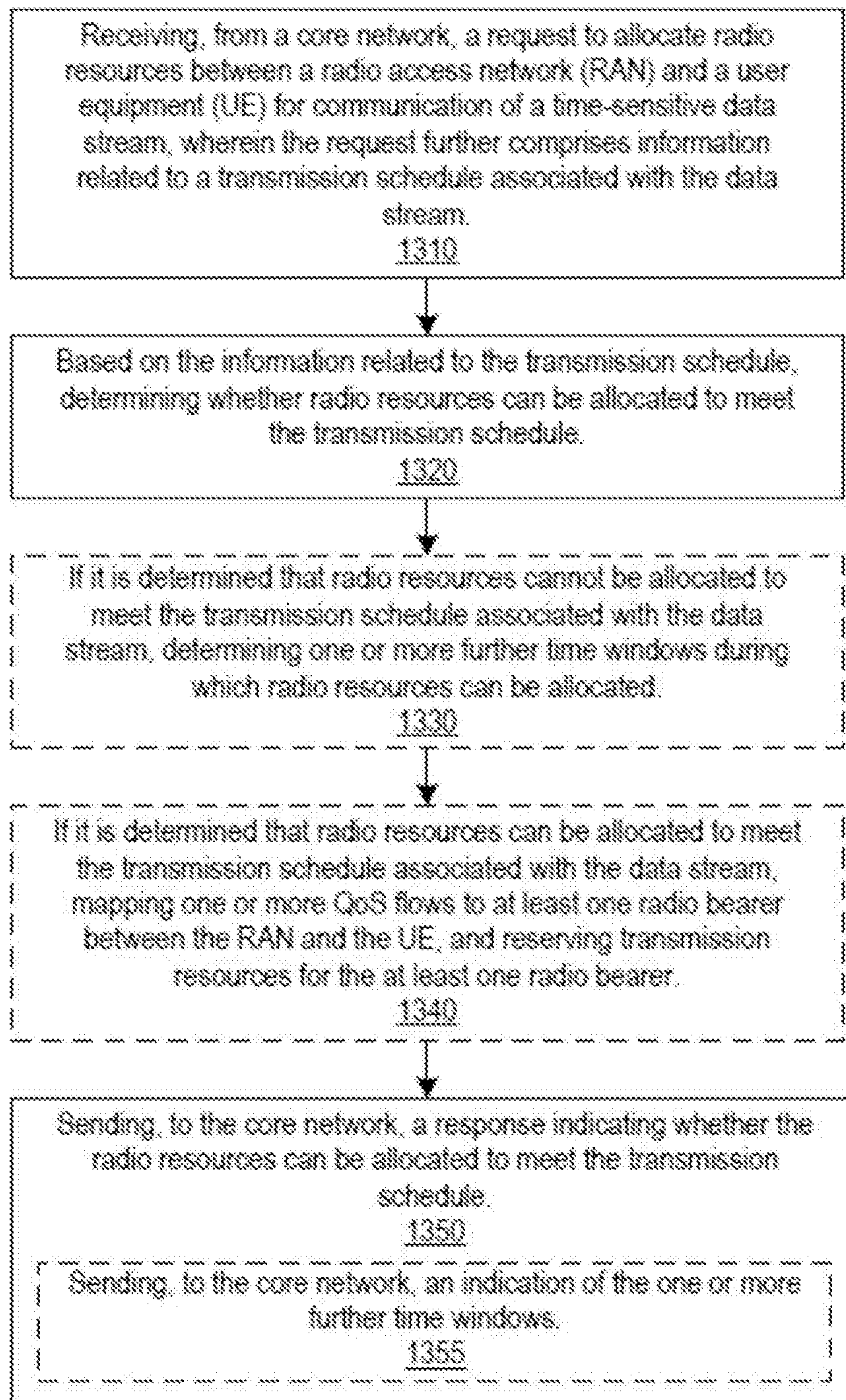
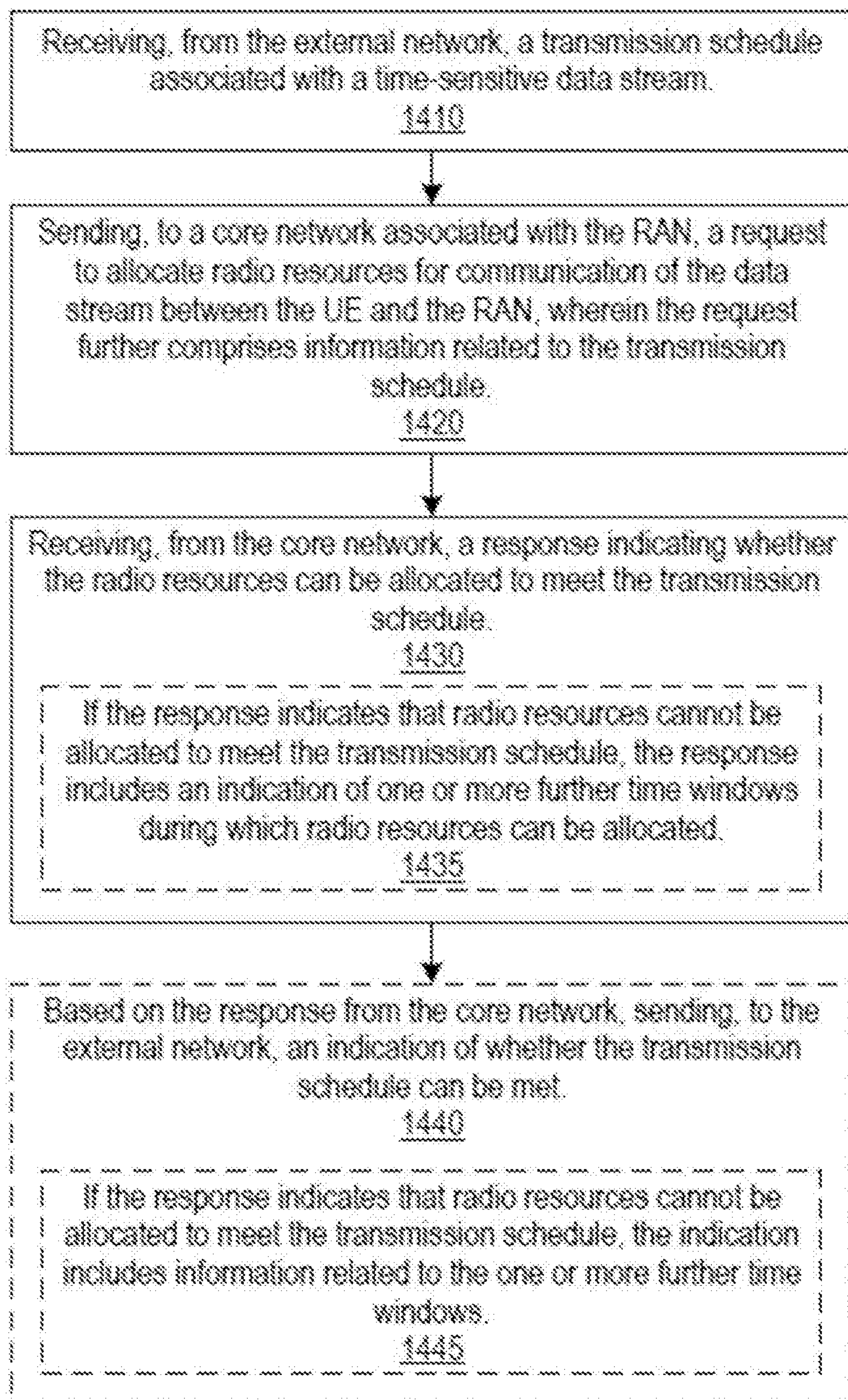


Fig. 116

**Fig. 117**

**Fig. 118**

**Fig. 119**

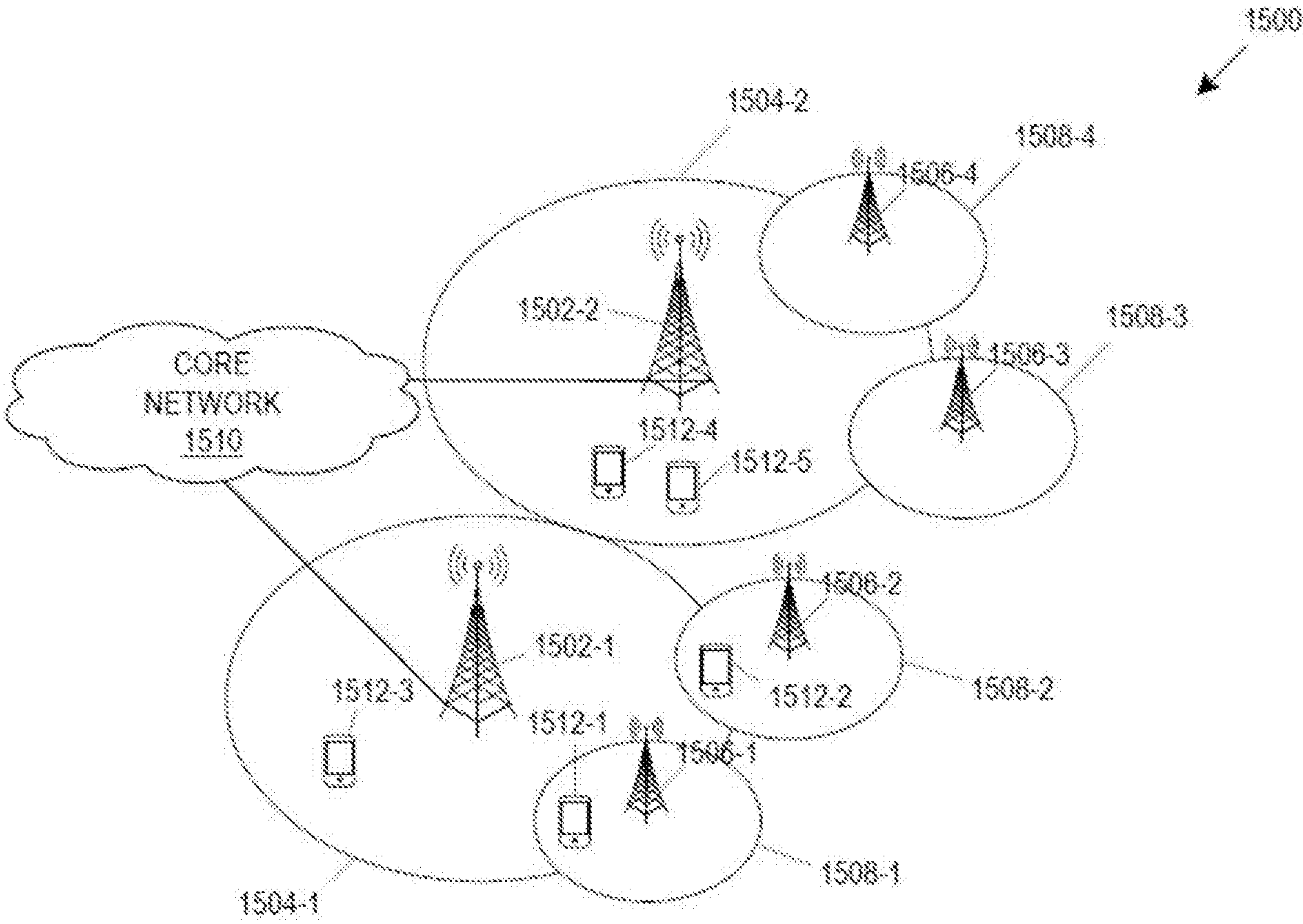


Fig. 120

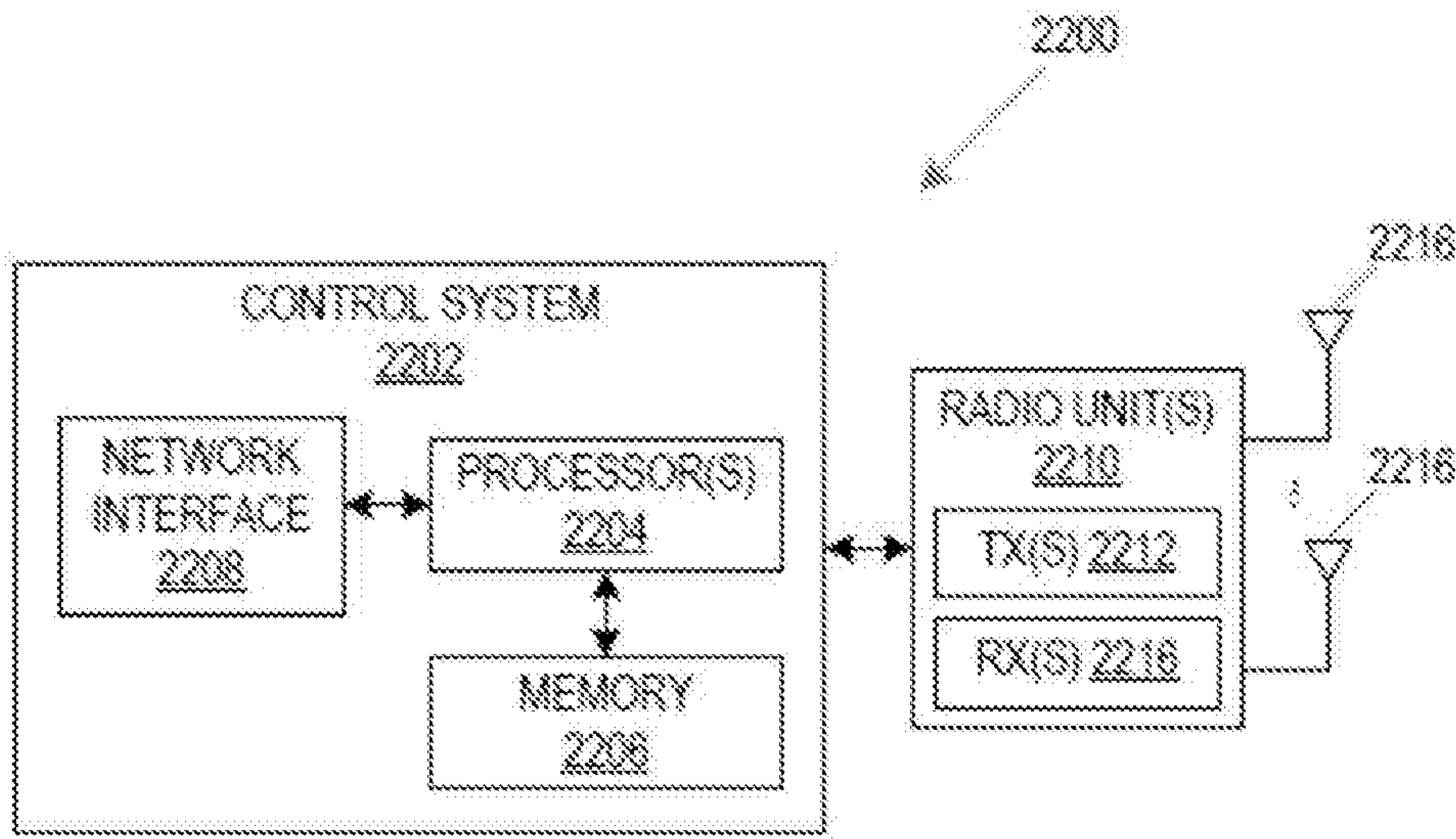


Fig. 121

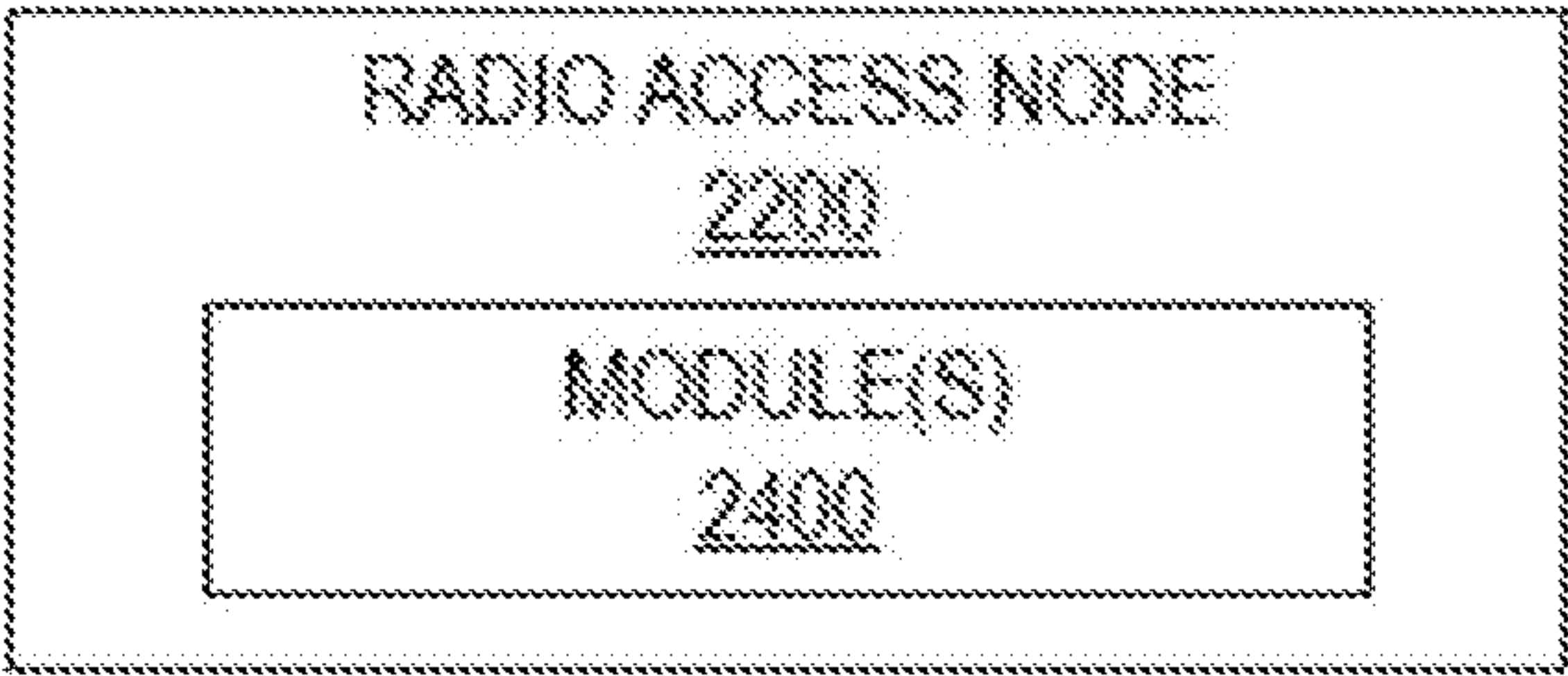


Fig. 122

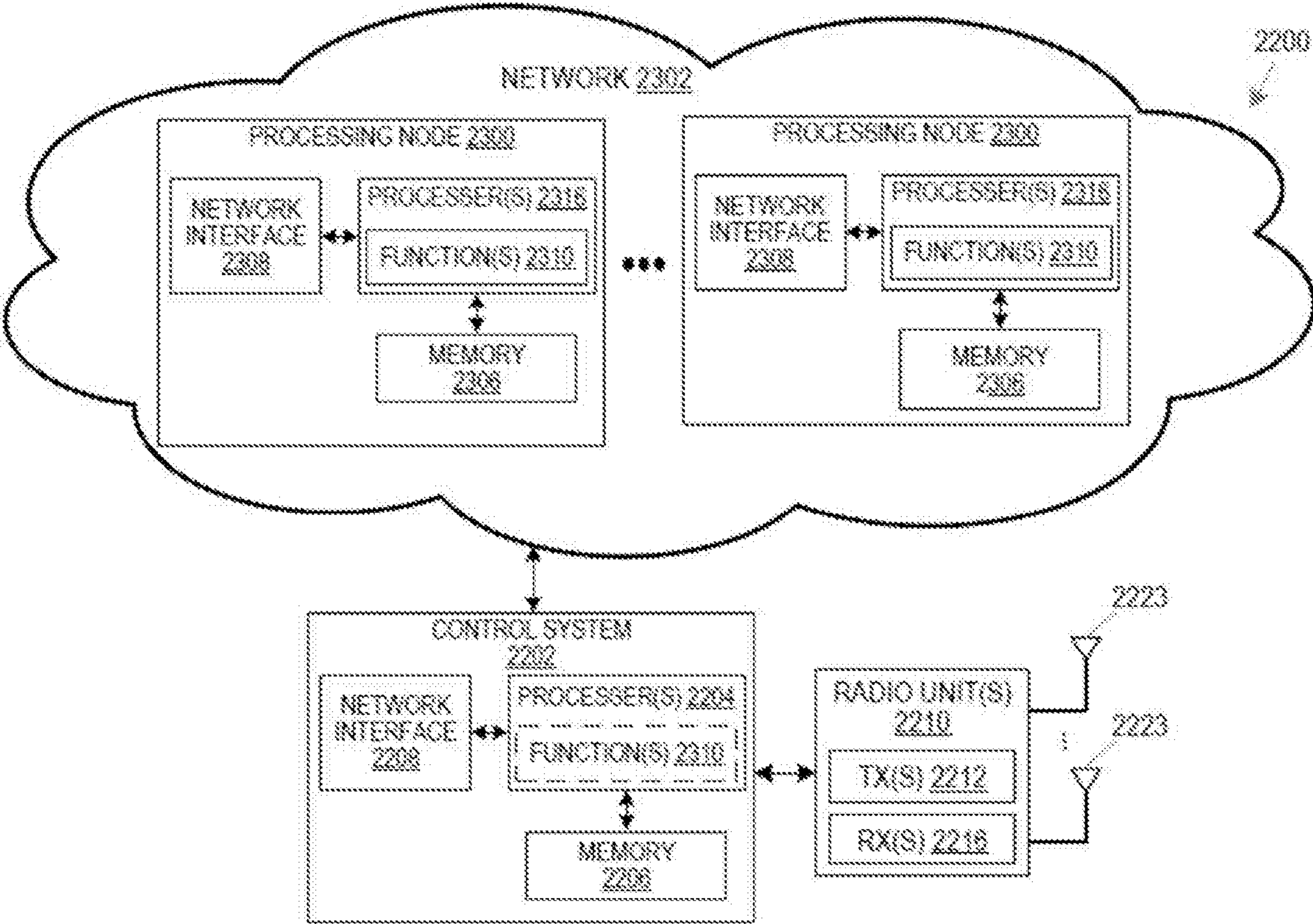


Fig. 123

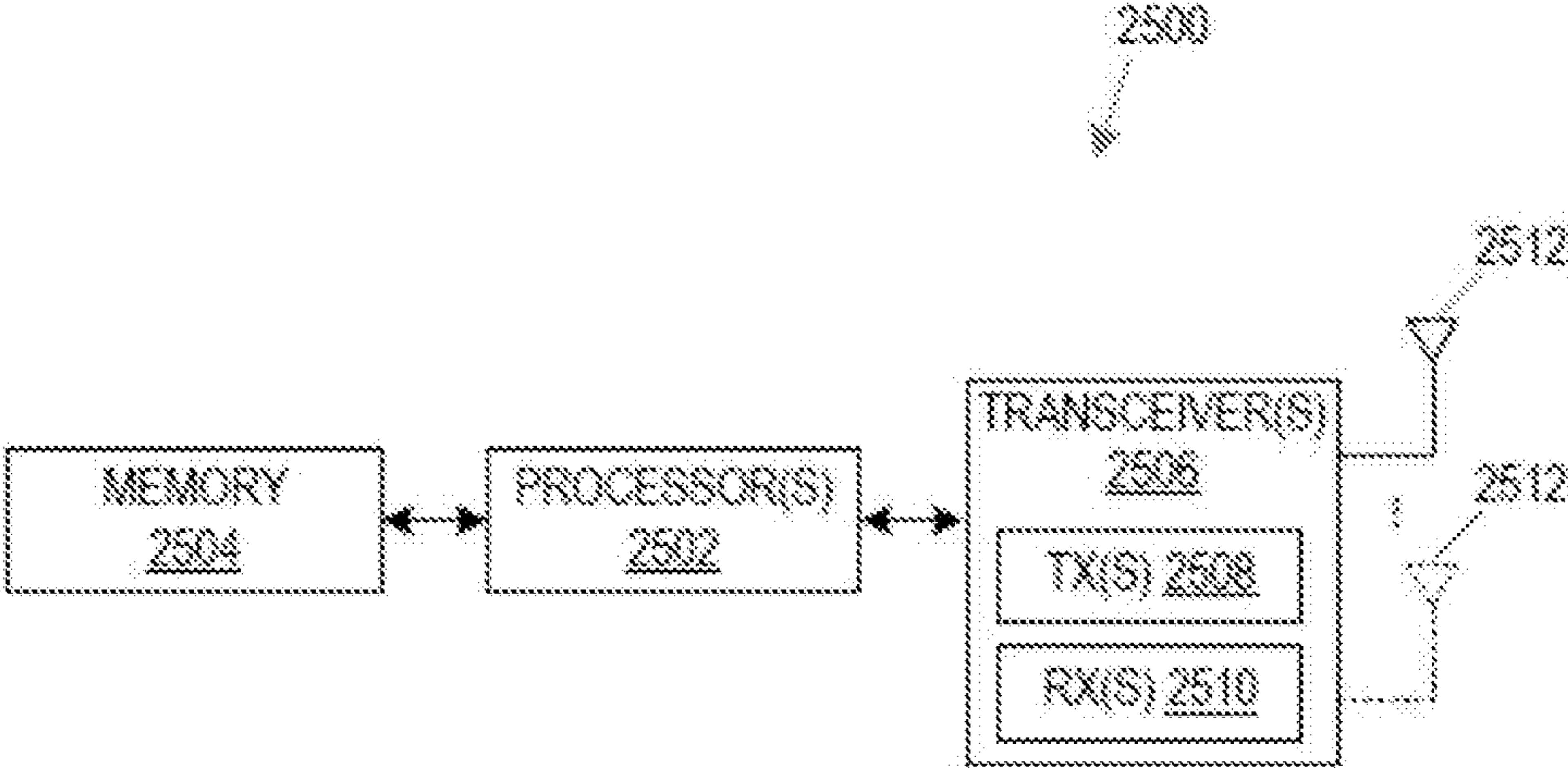


Fig. 124

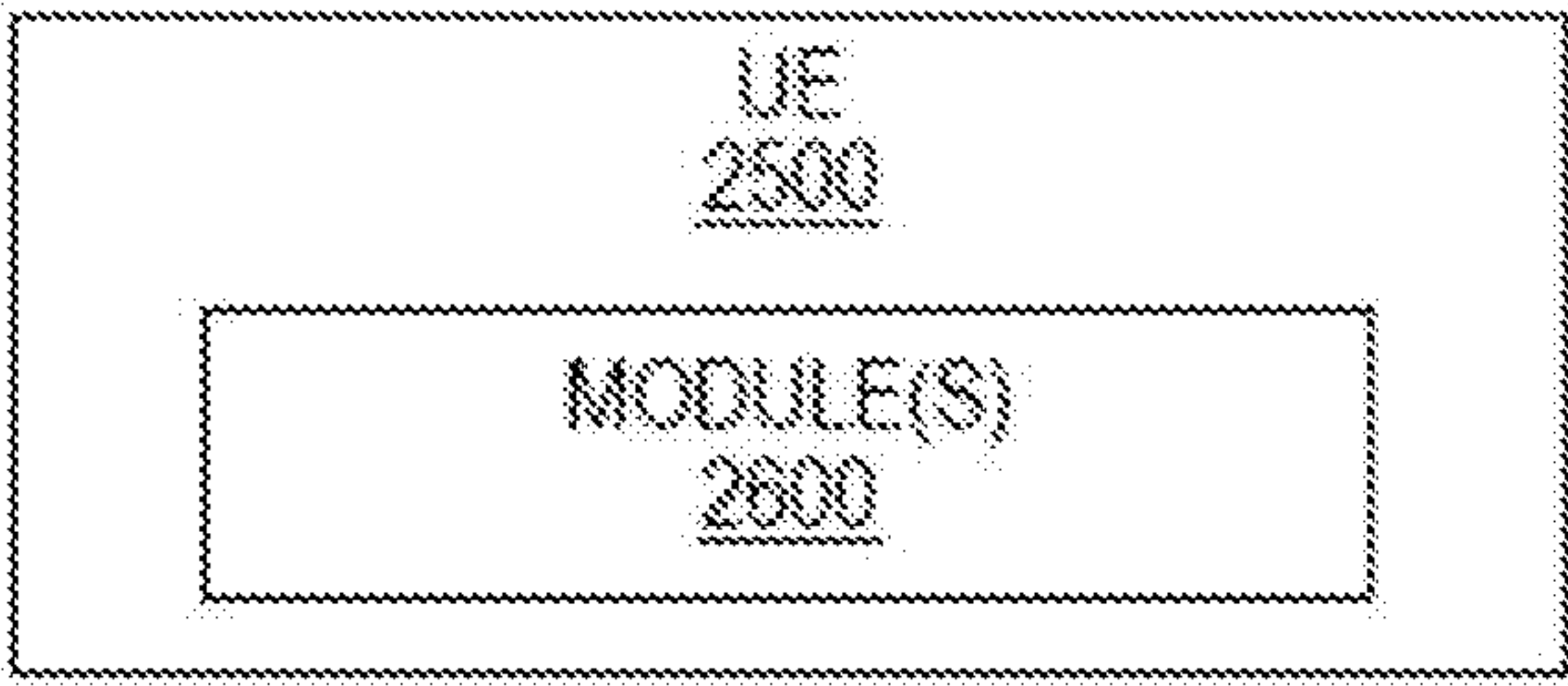
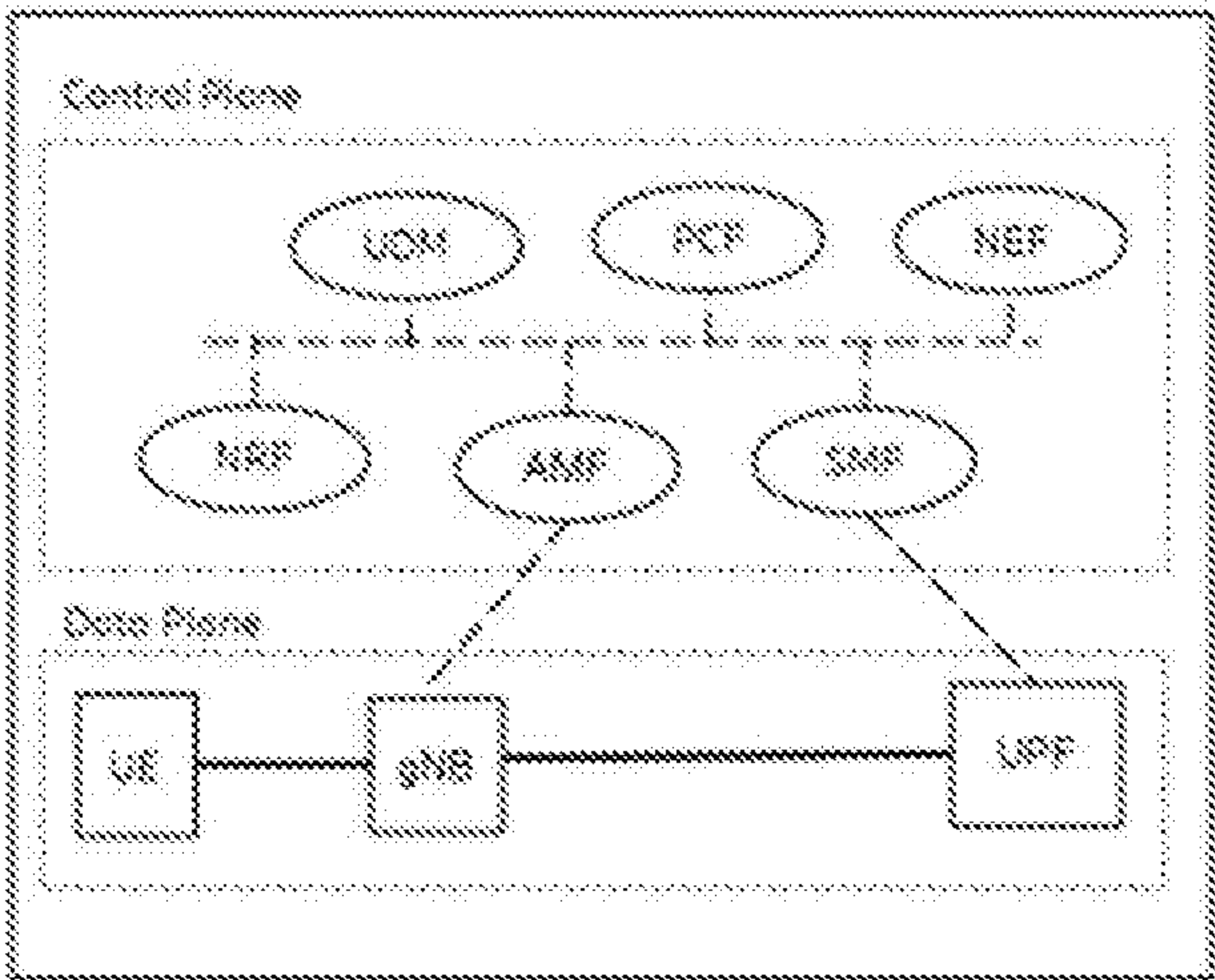


Fig. 125



UPF: User Plane Function
NRF: Network Repository Function
AMF: Access Management Function
SMF: Session Management Function
NEF: Network Exposure Function
PCF: Policy Control Function
UDM: Unified Data Management

Fig. 126

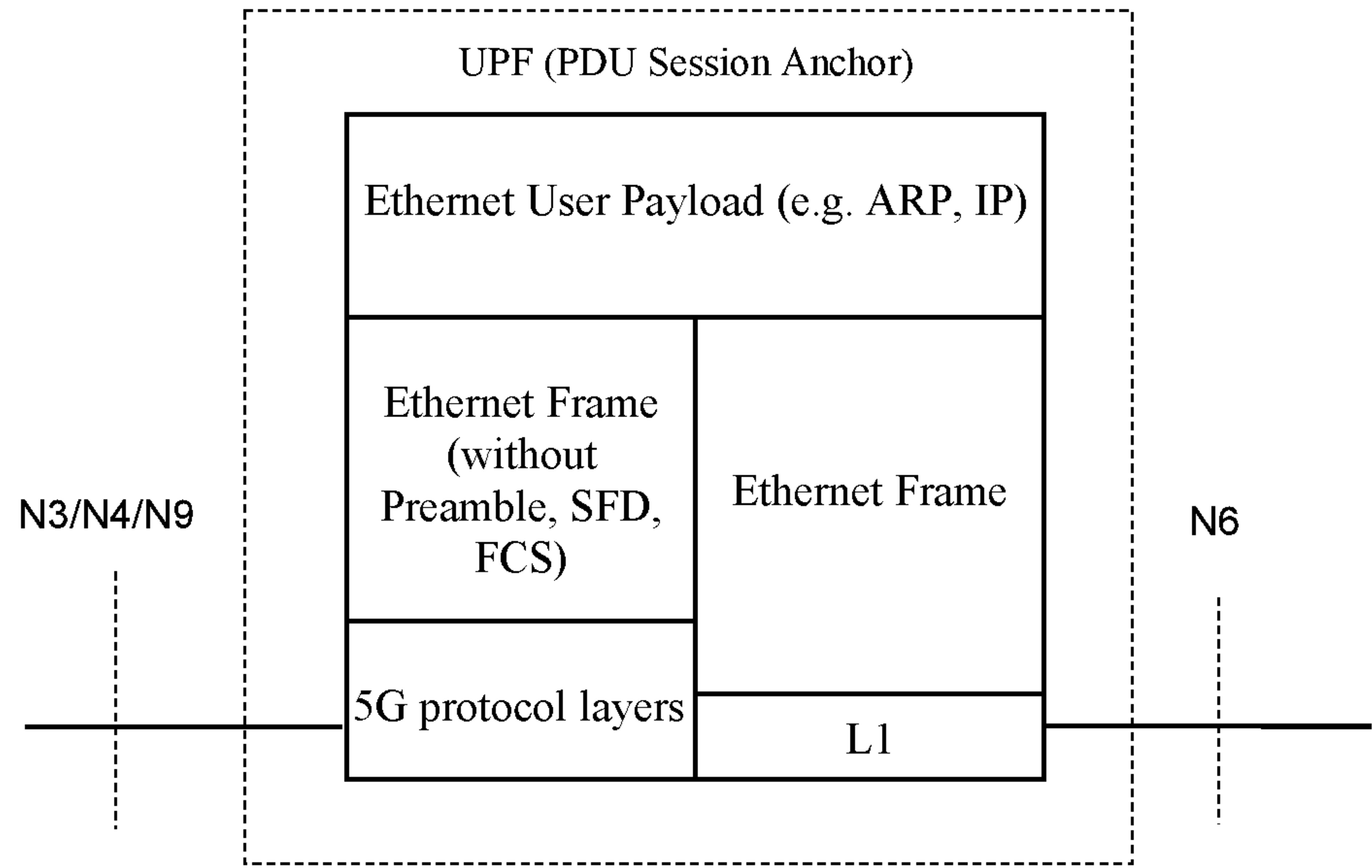


Fig. 127

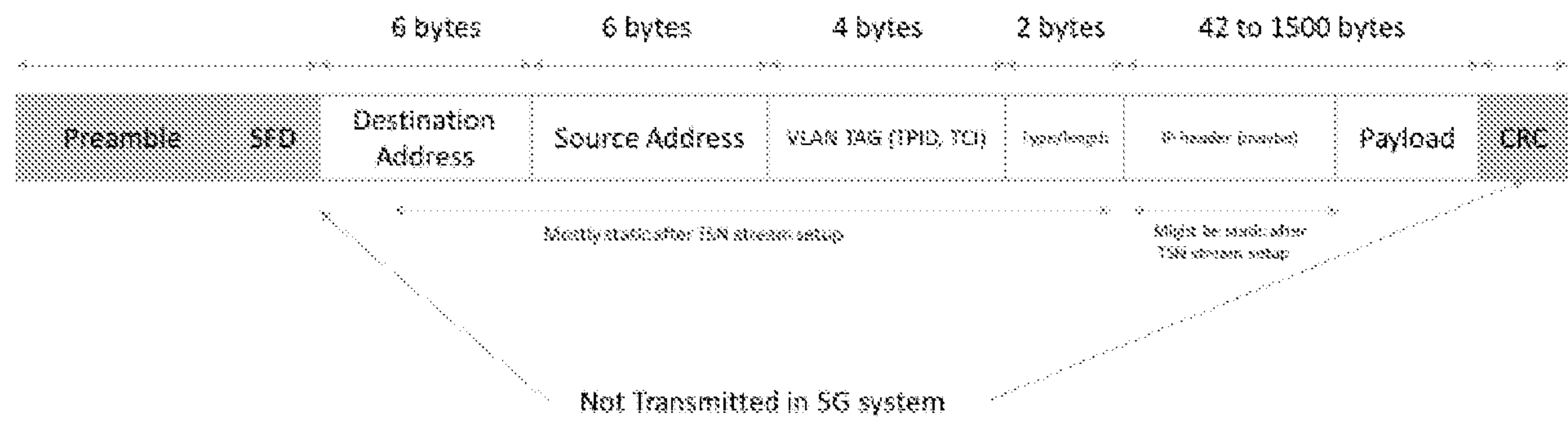


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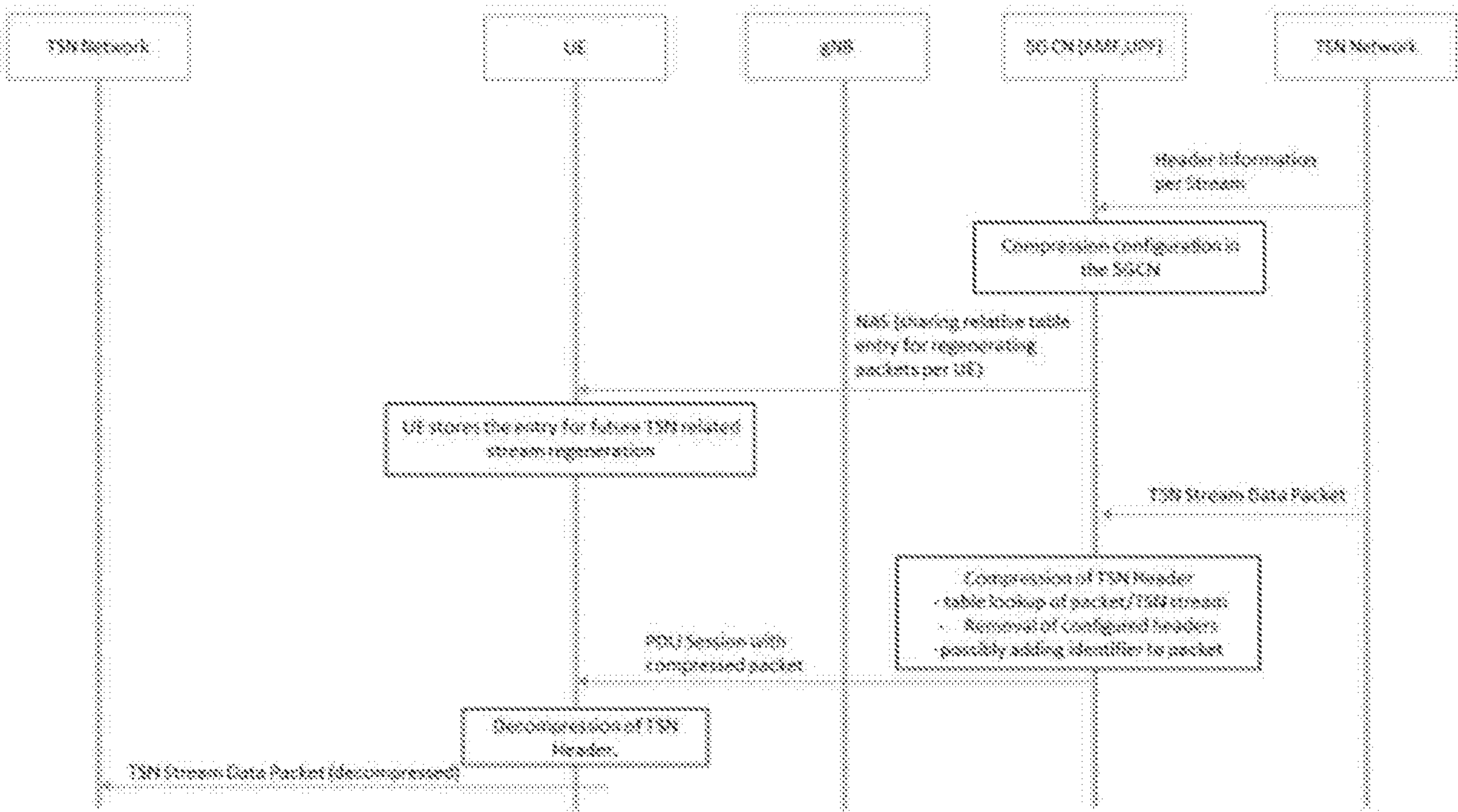


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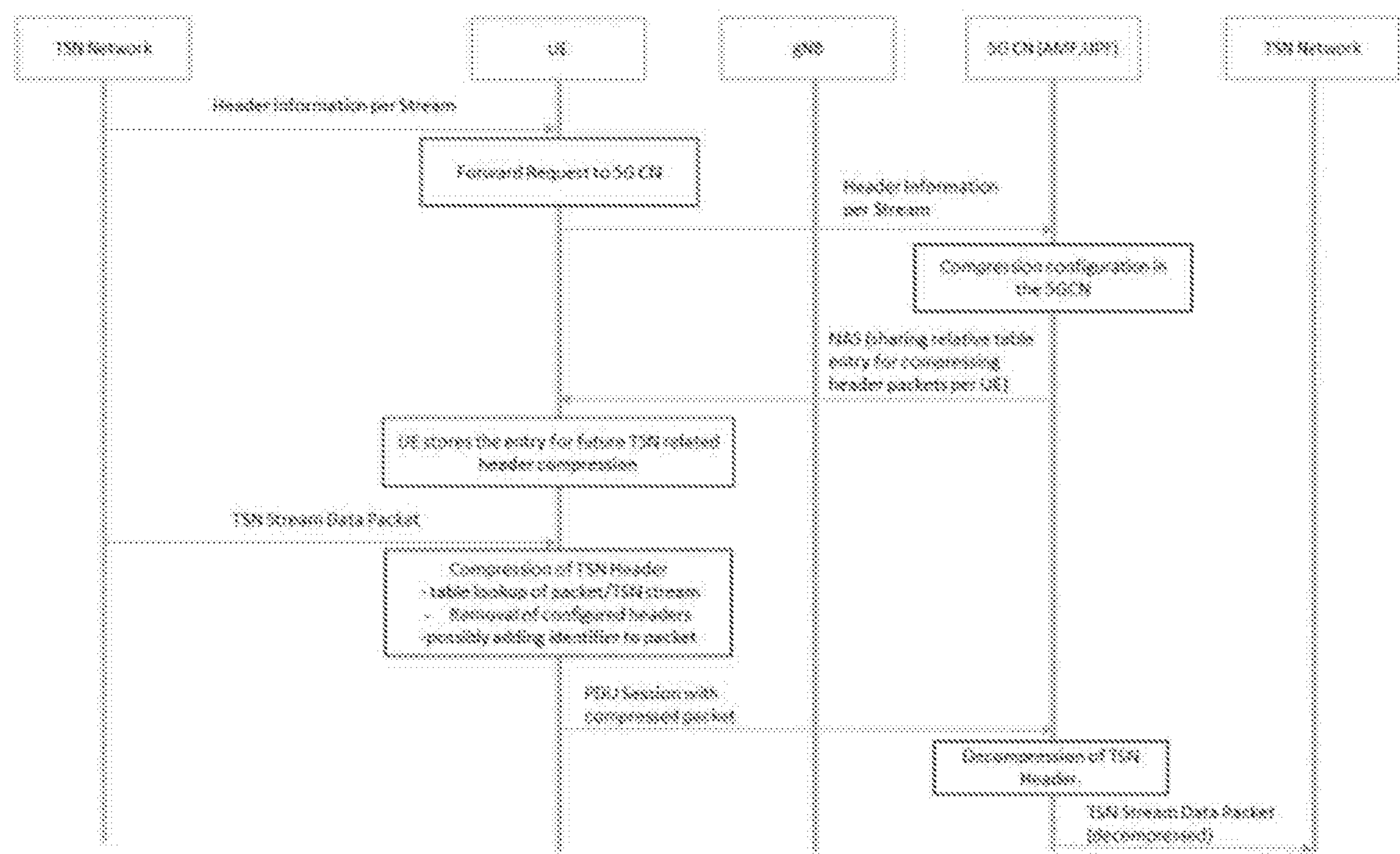
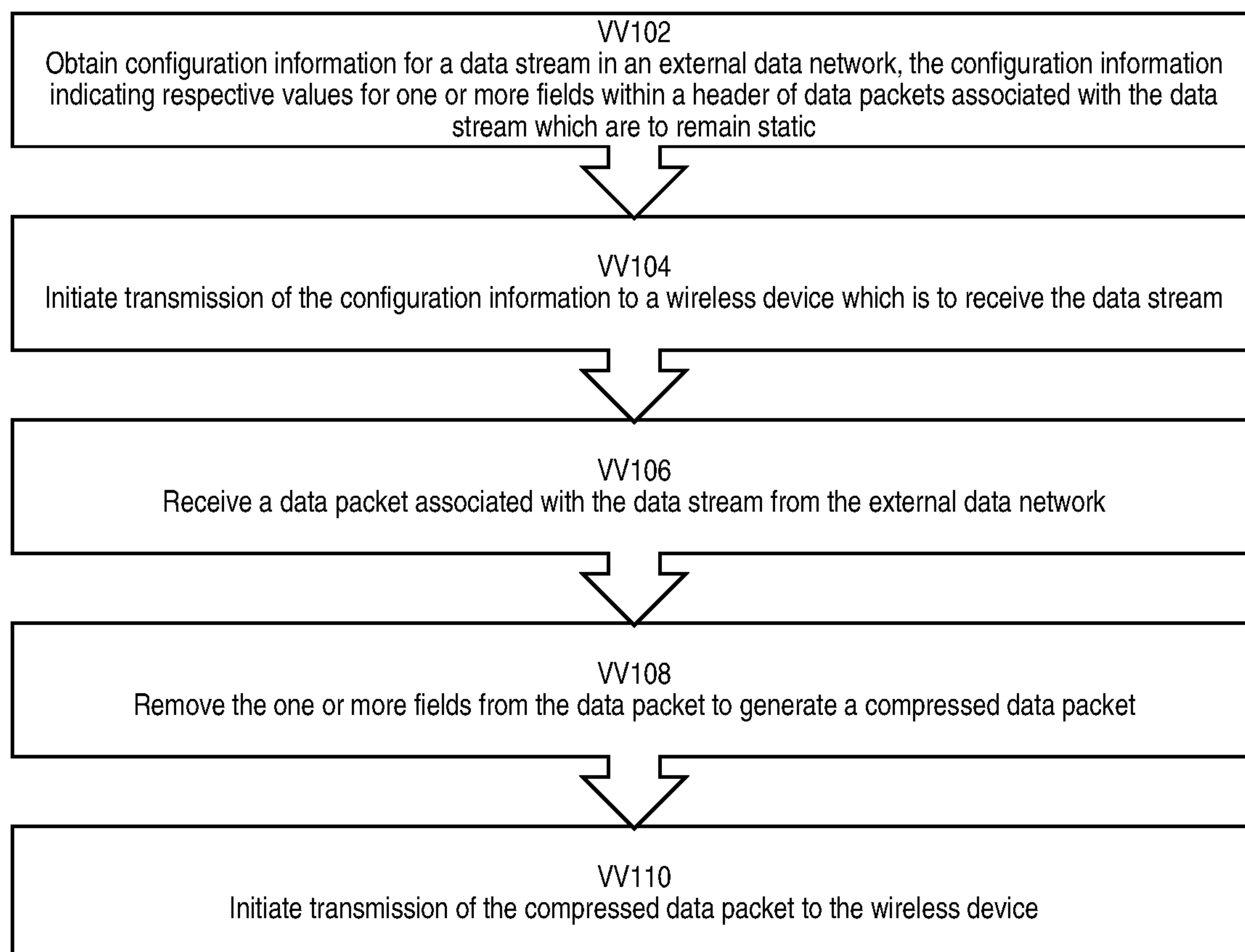
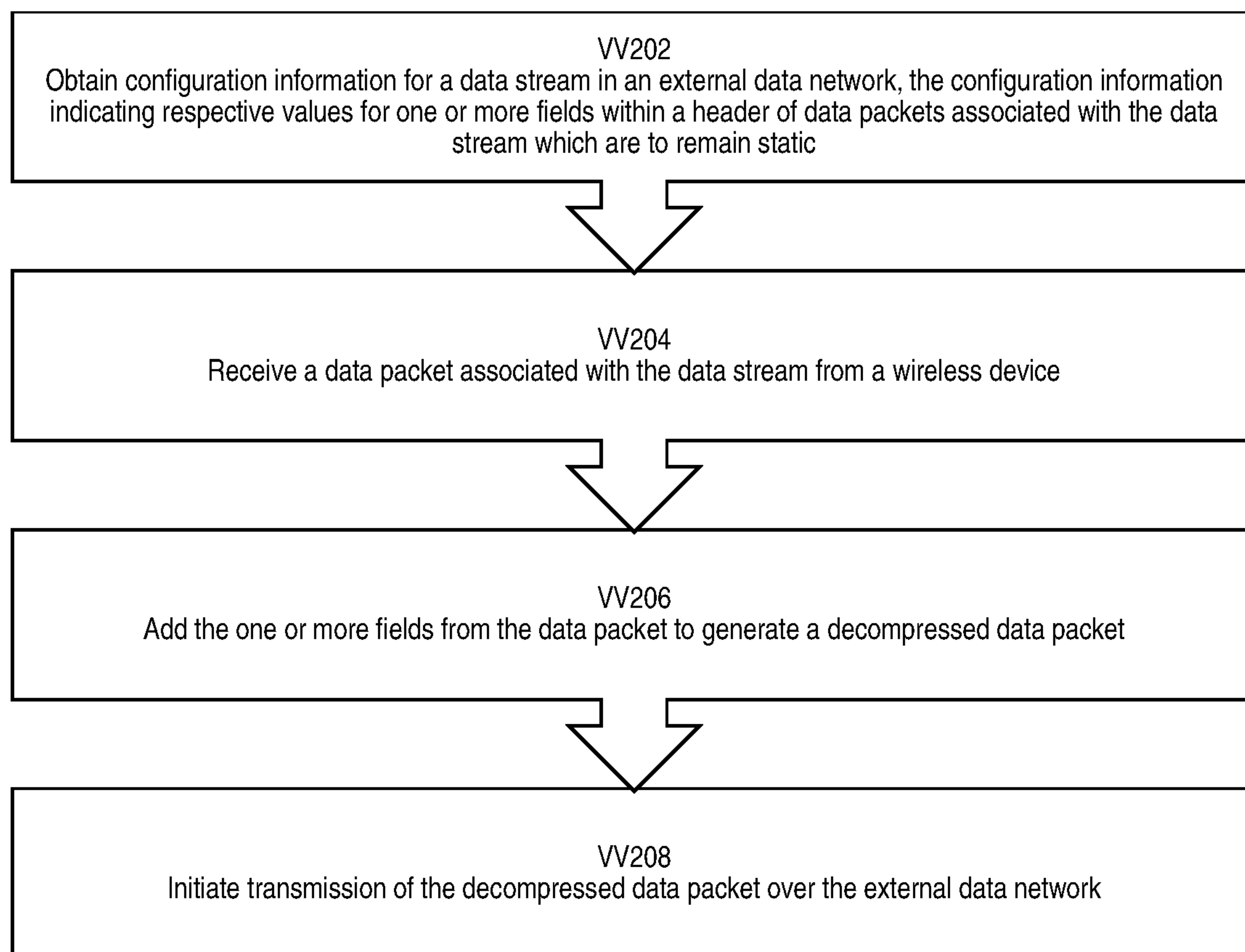
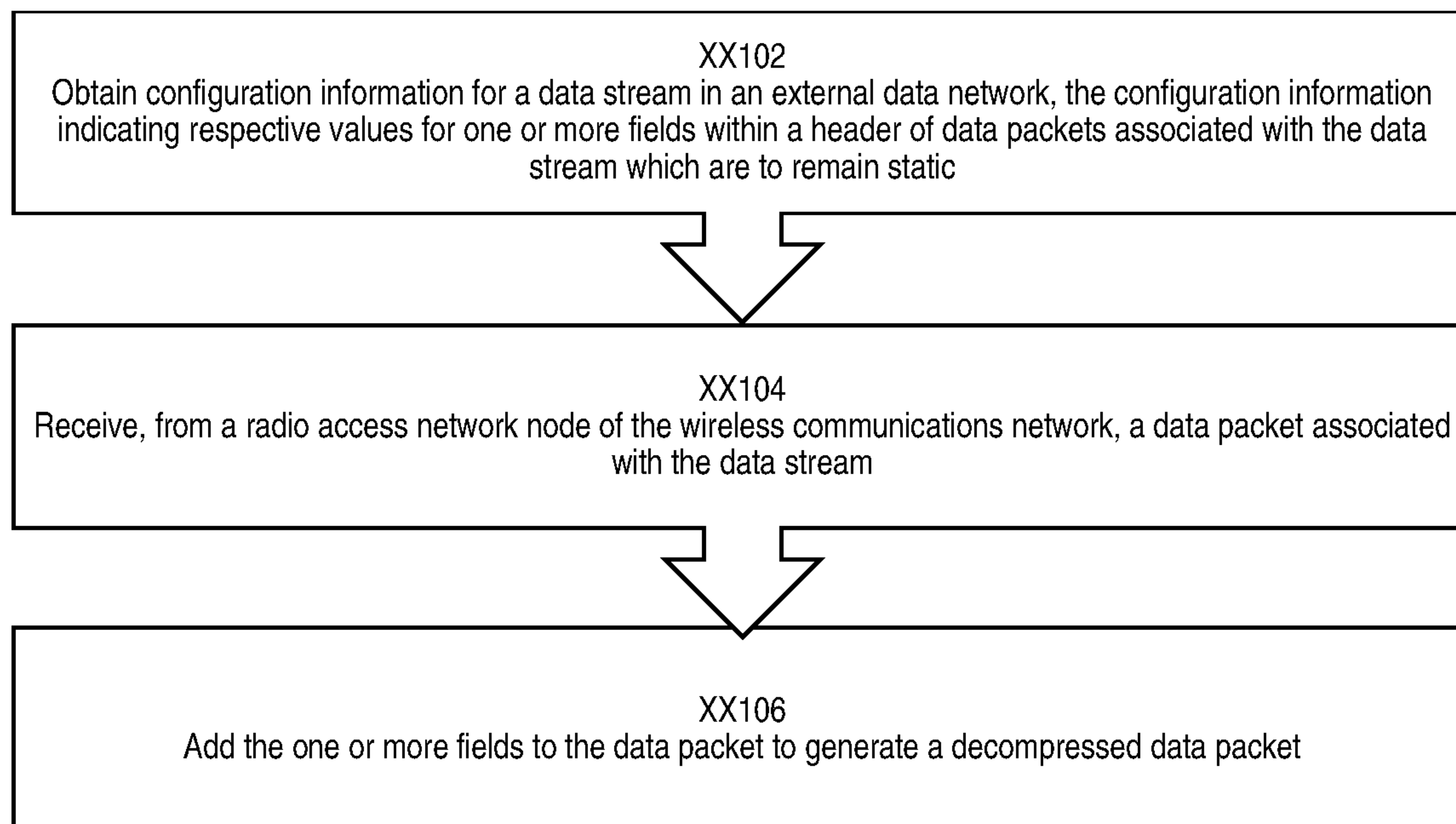
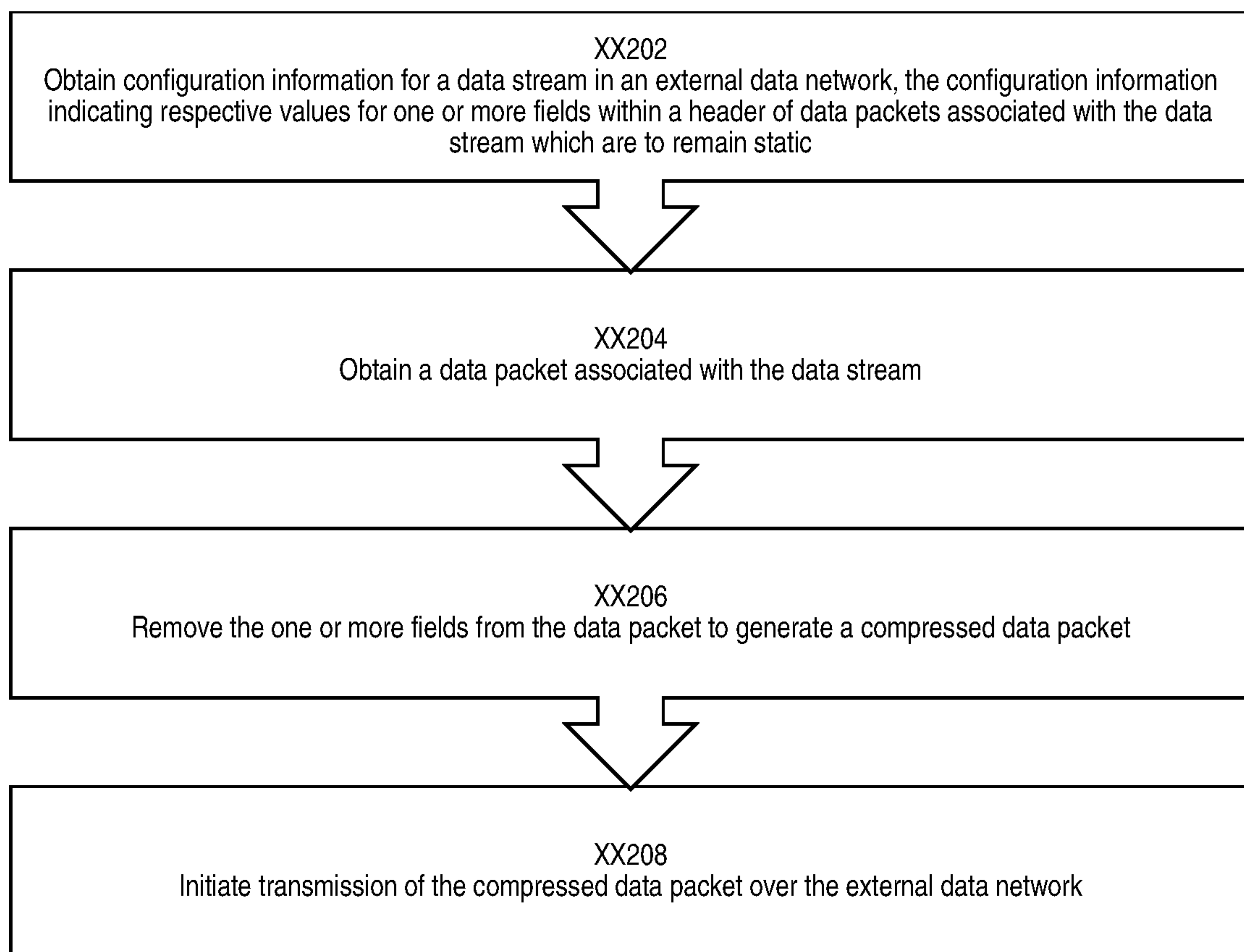
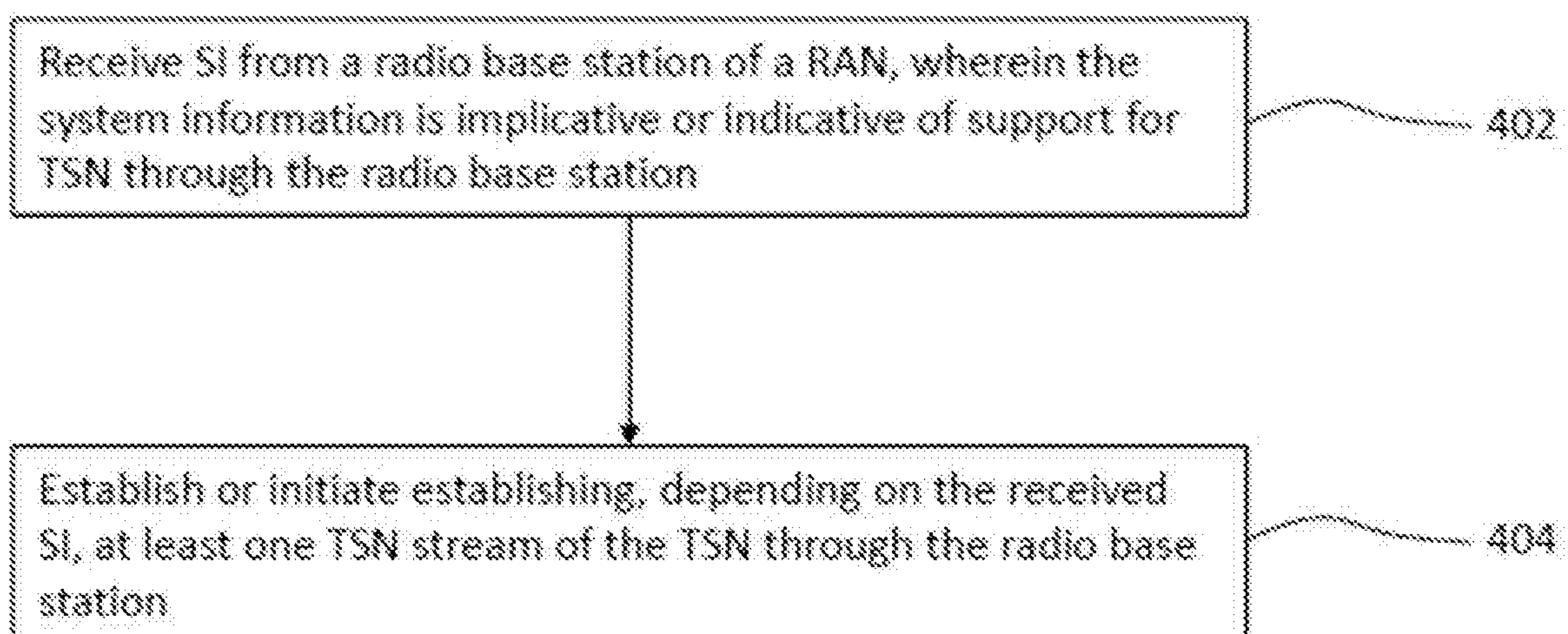


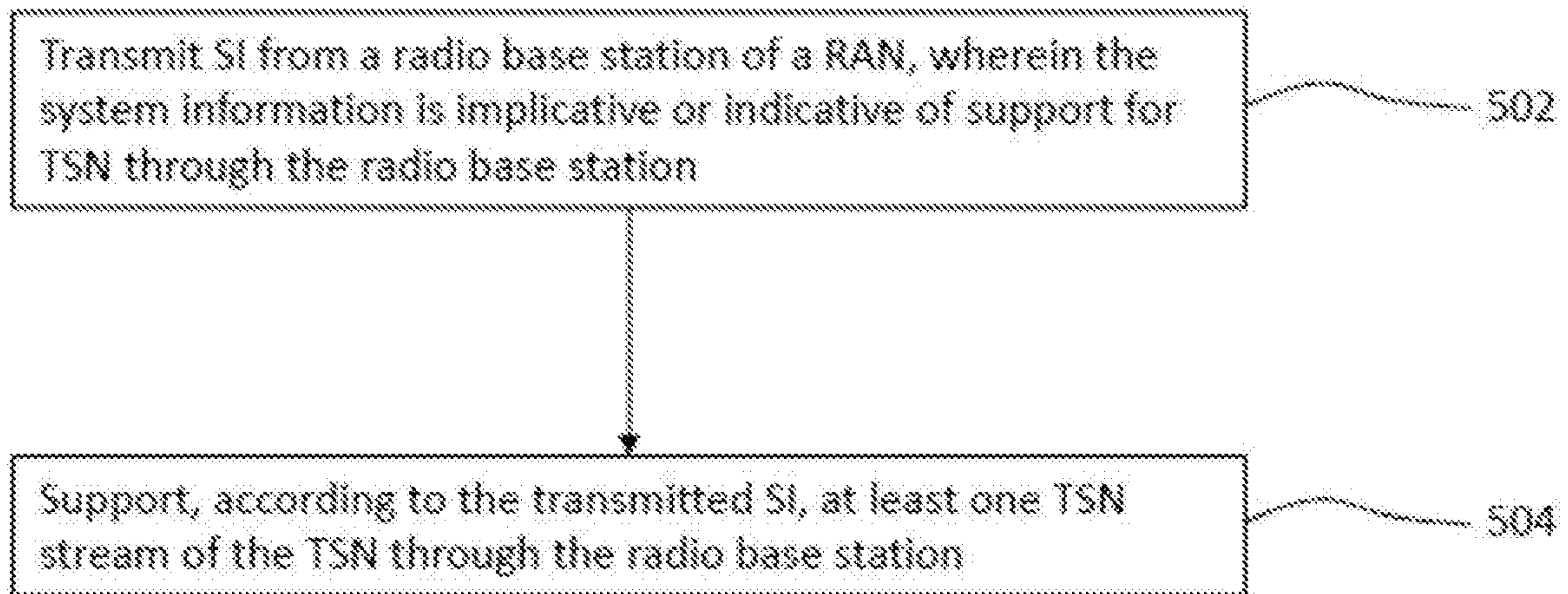
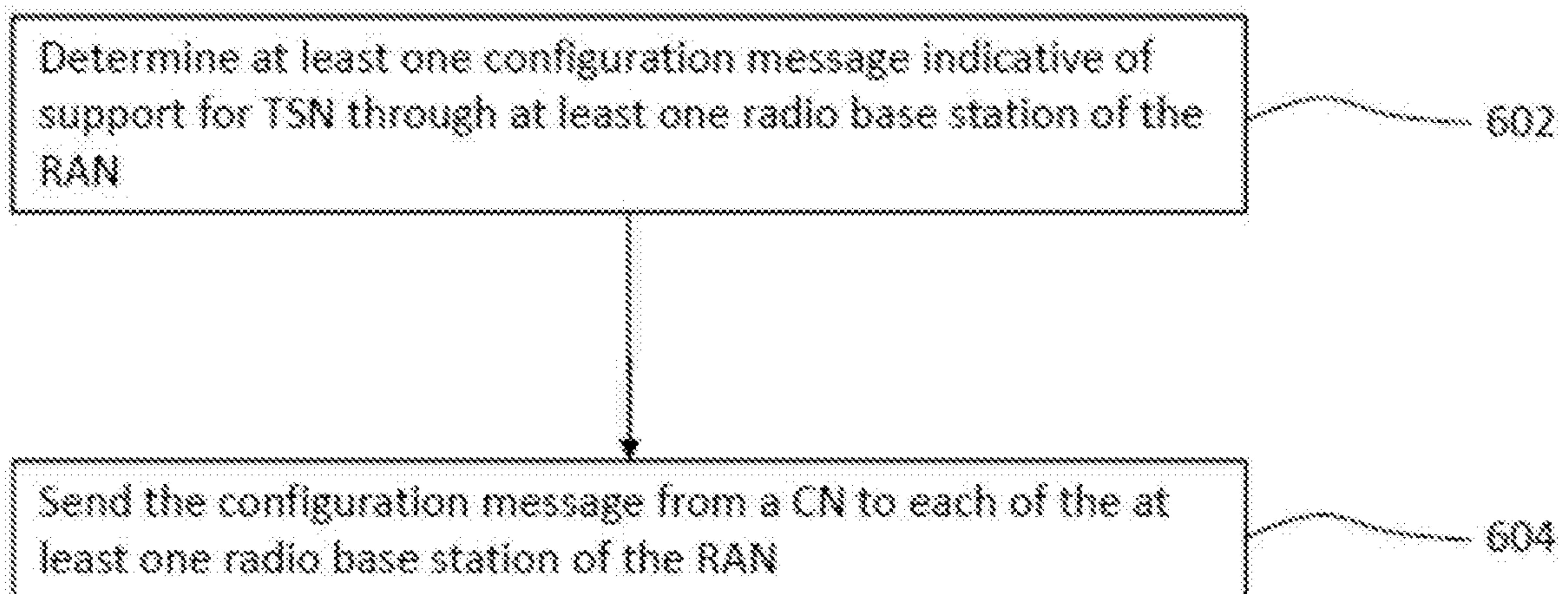
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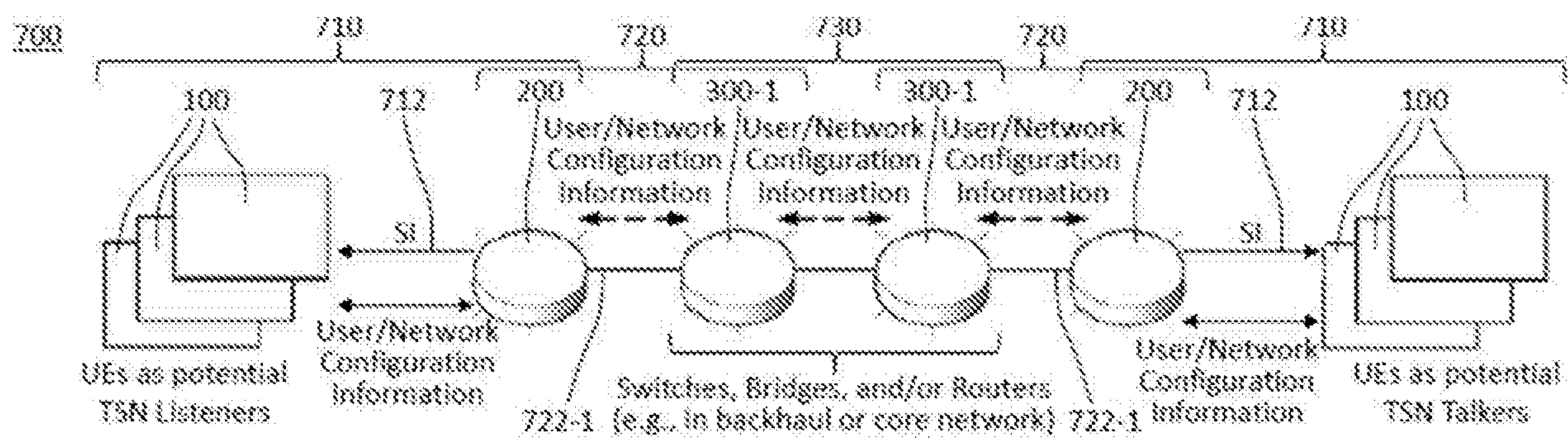
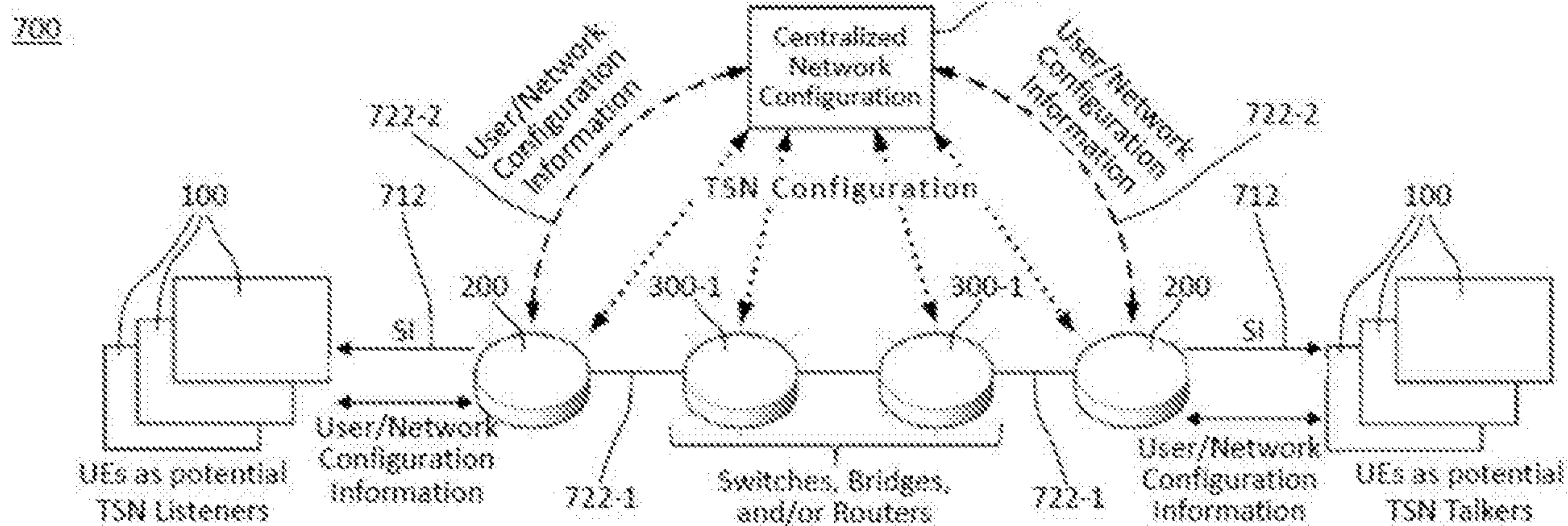
**Fig. 131**

**Fig. 132**

**Fig. 133**

**Fig. 134****Fig. 135**

**Fig. 136****Fig. 137**

**Fig. 138****Fig. 139**

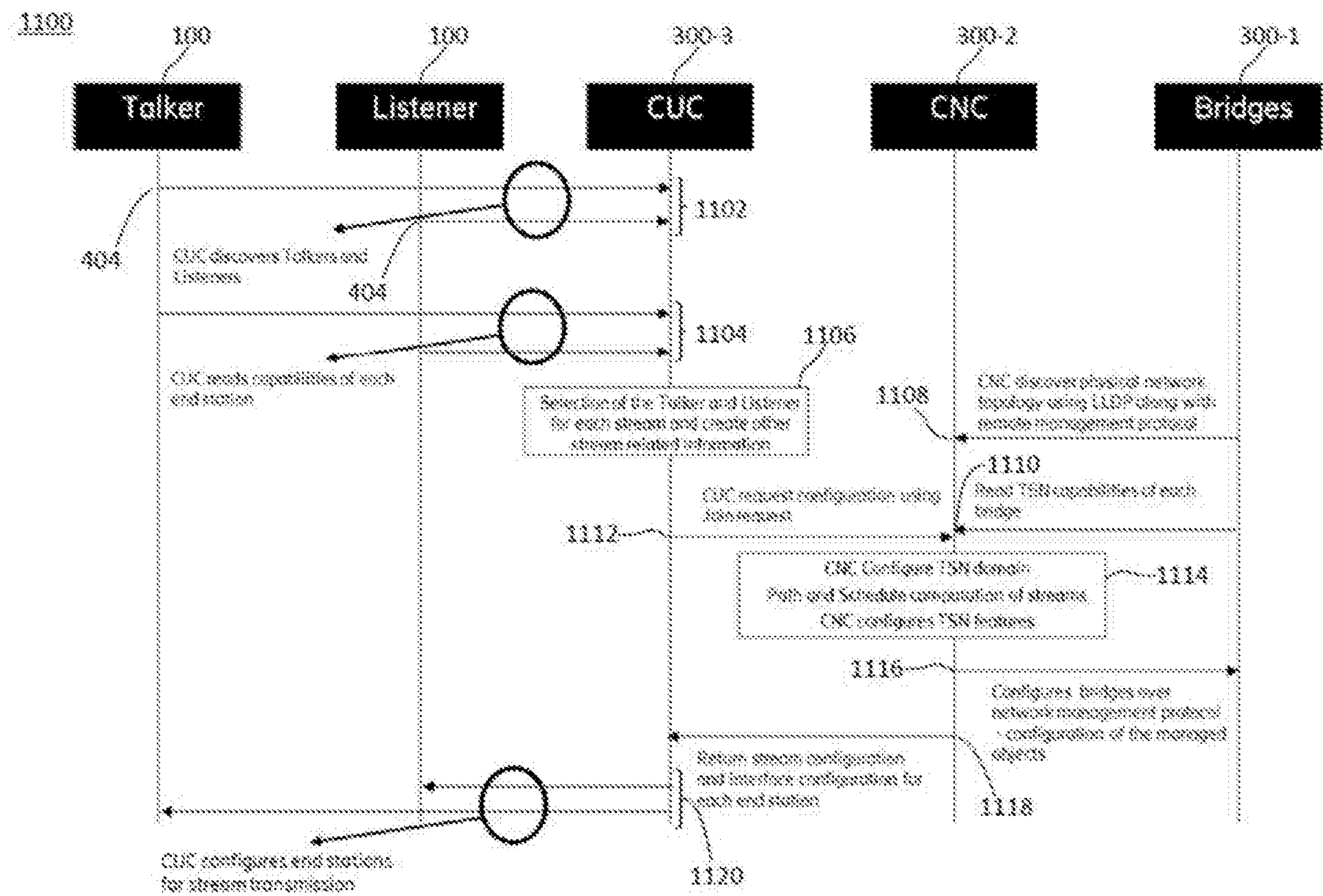


Fig. 142

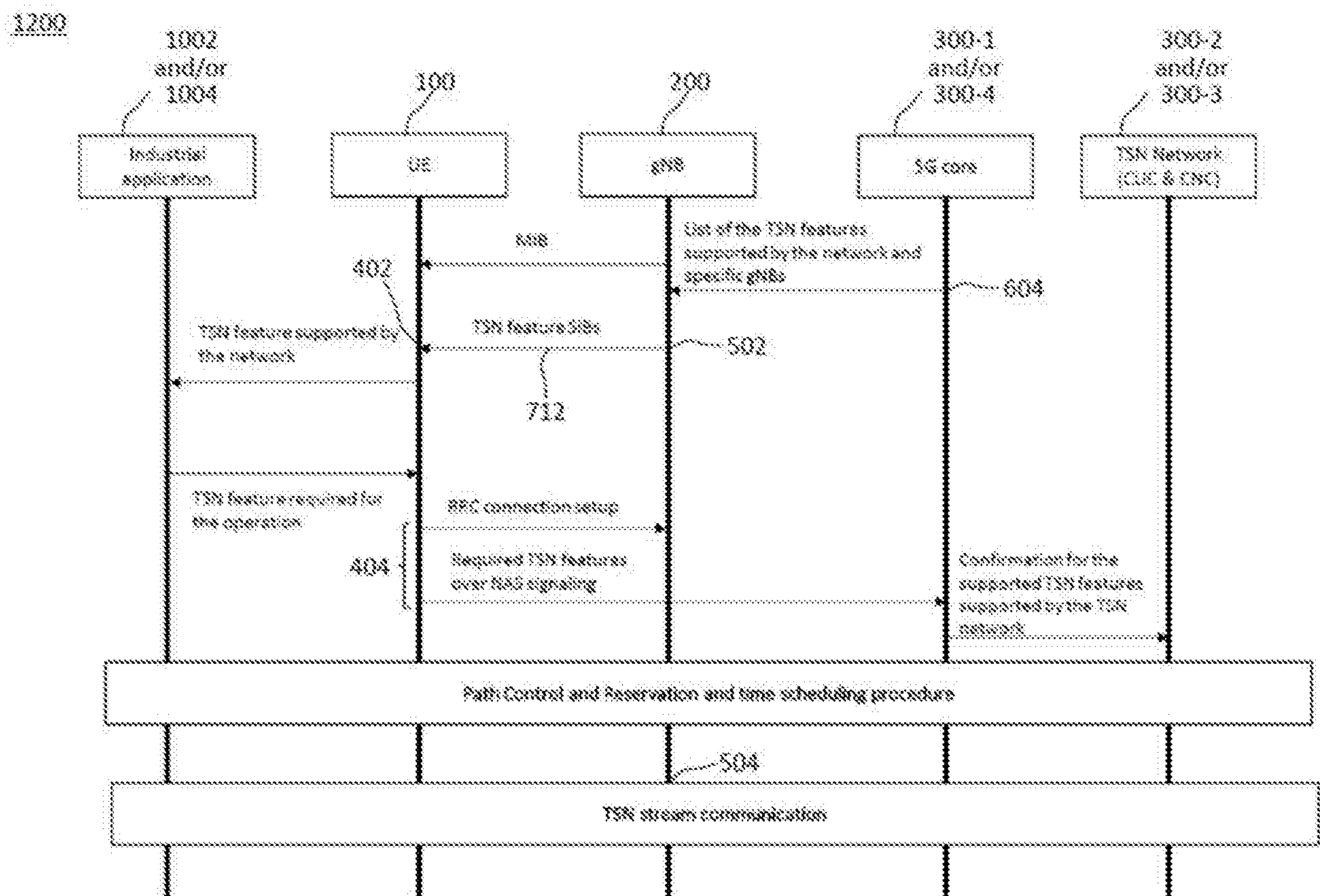


Fig. 143

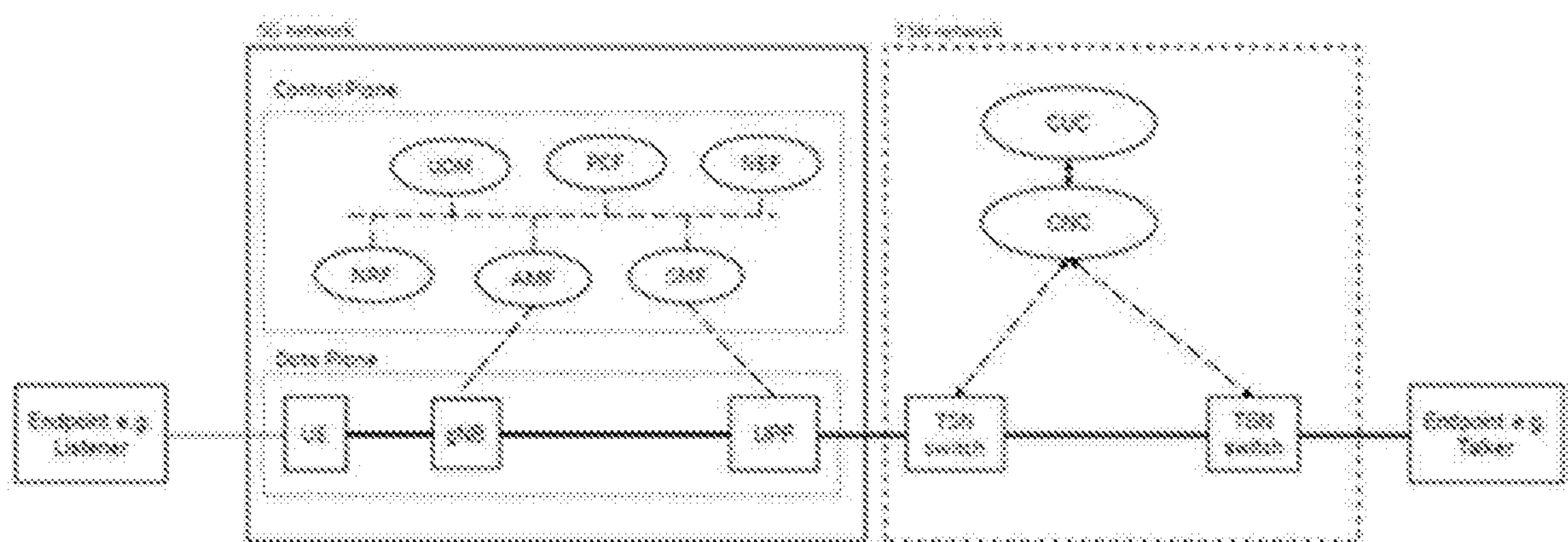


Fig. 144

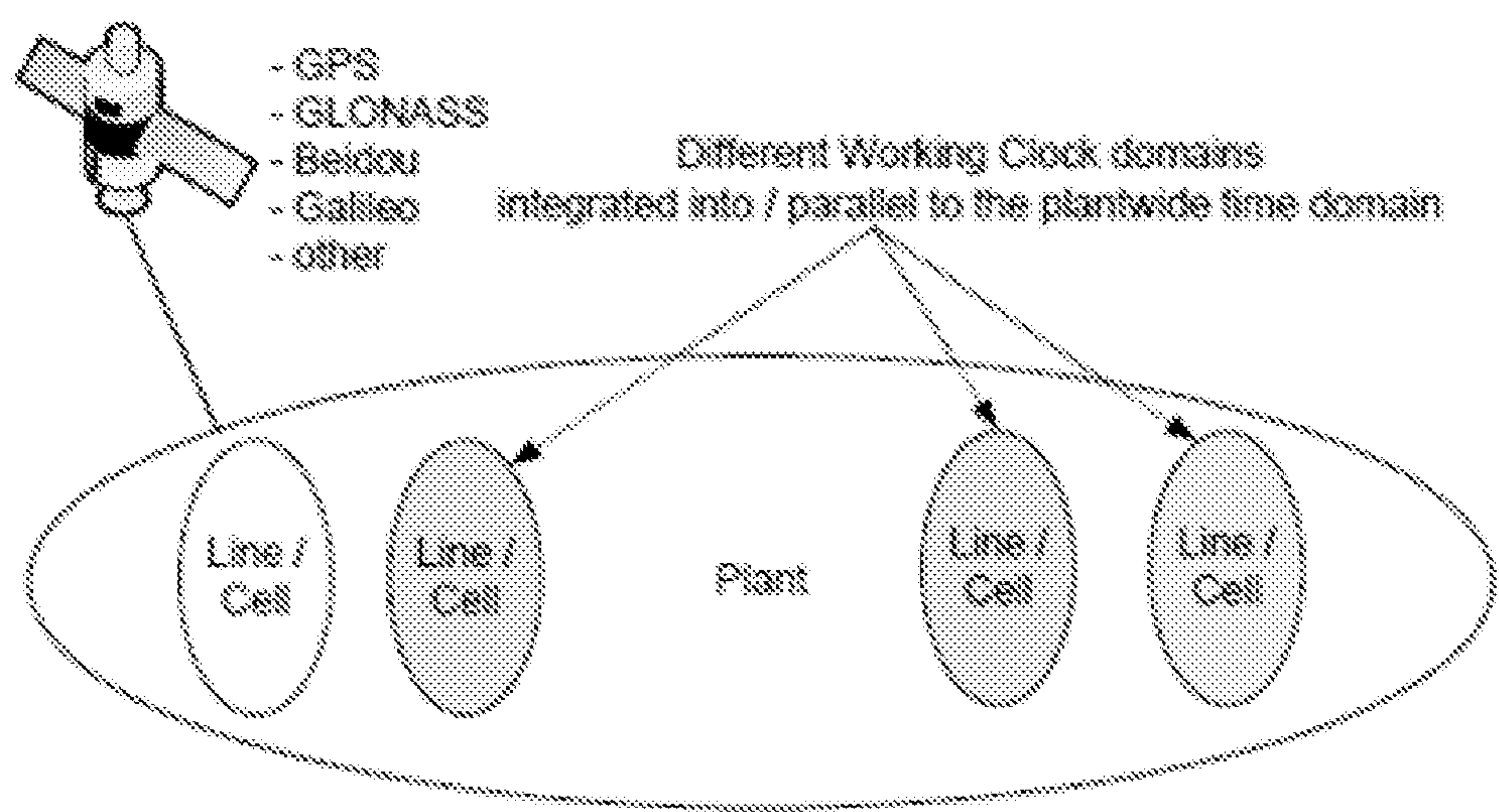


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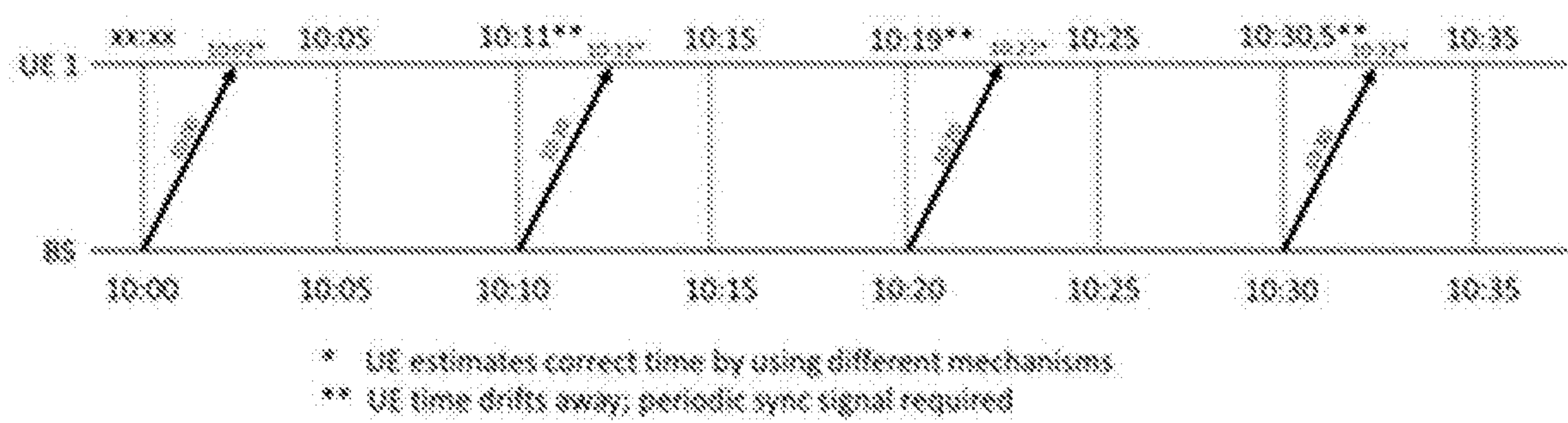


Fig. 146

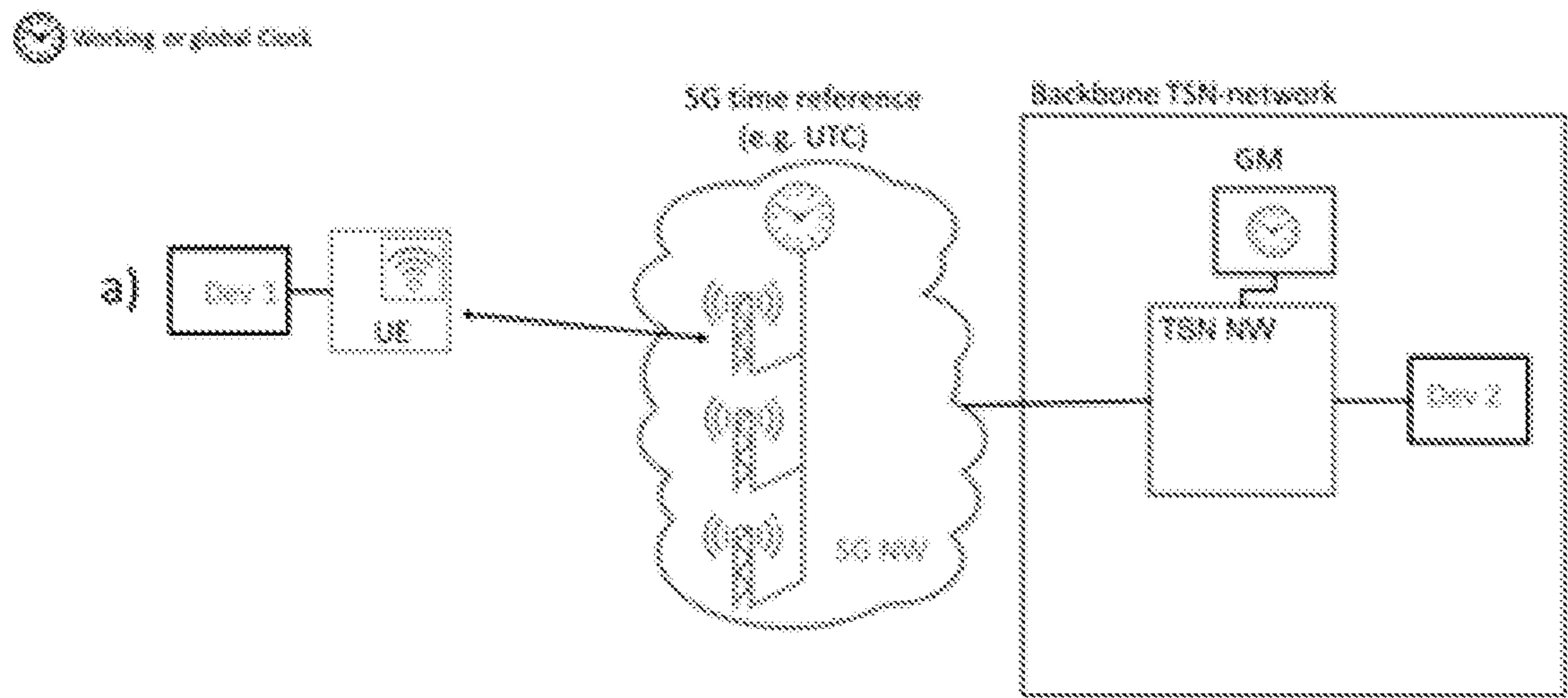


Fig. 147

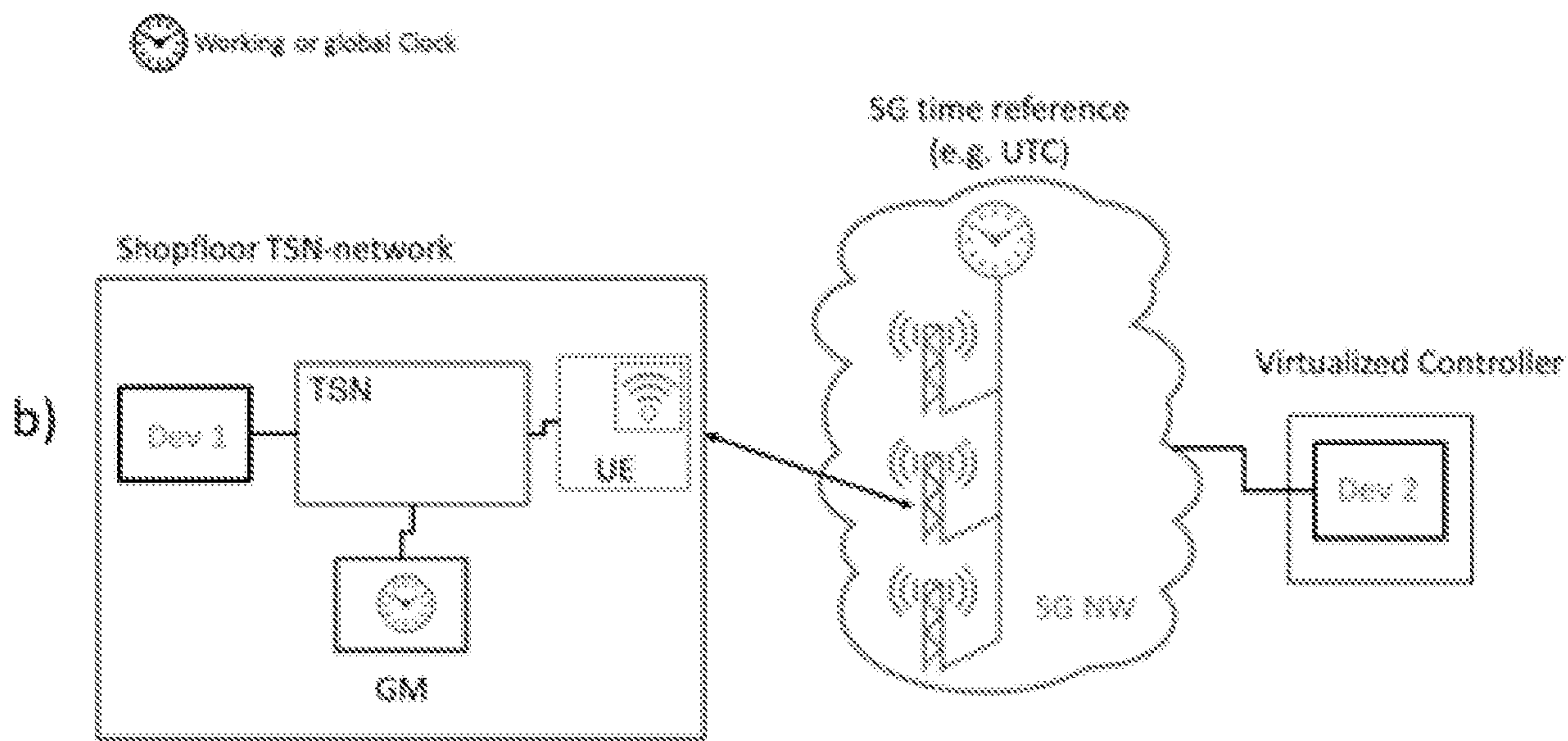


Fig. 148

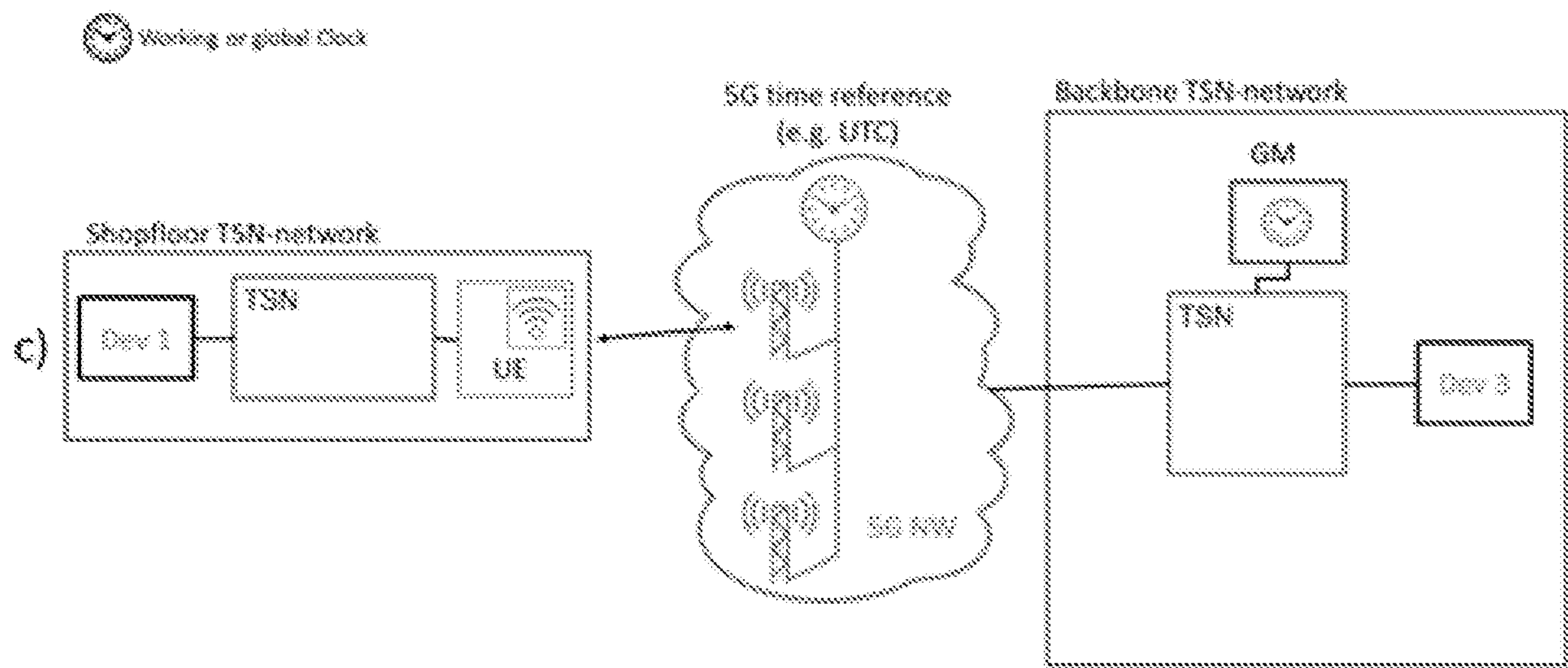


Fig. 149

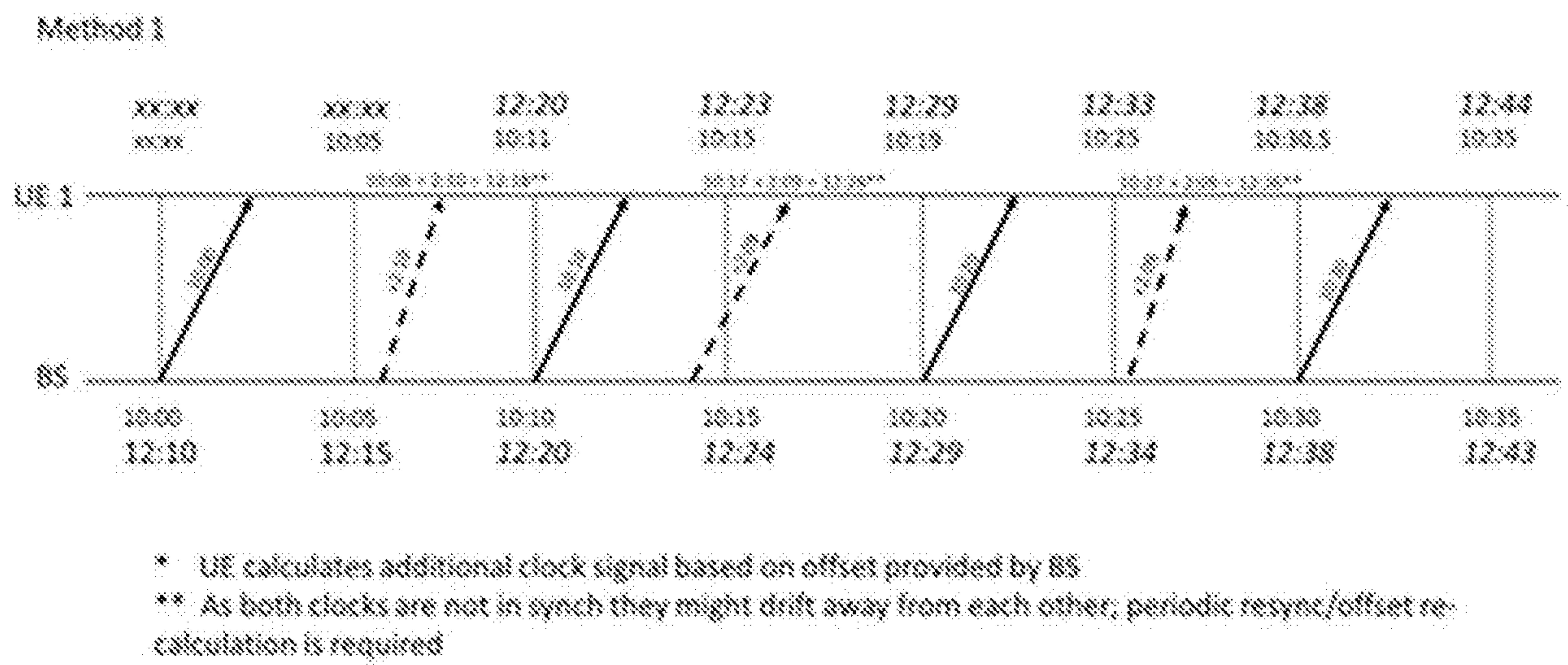


Fig. 150

Method 2

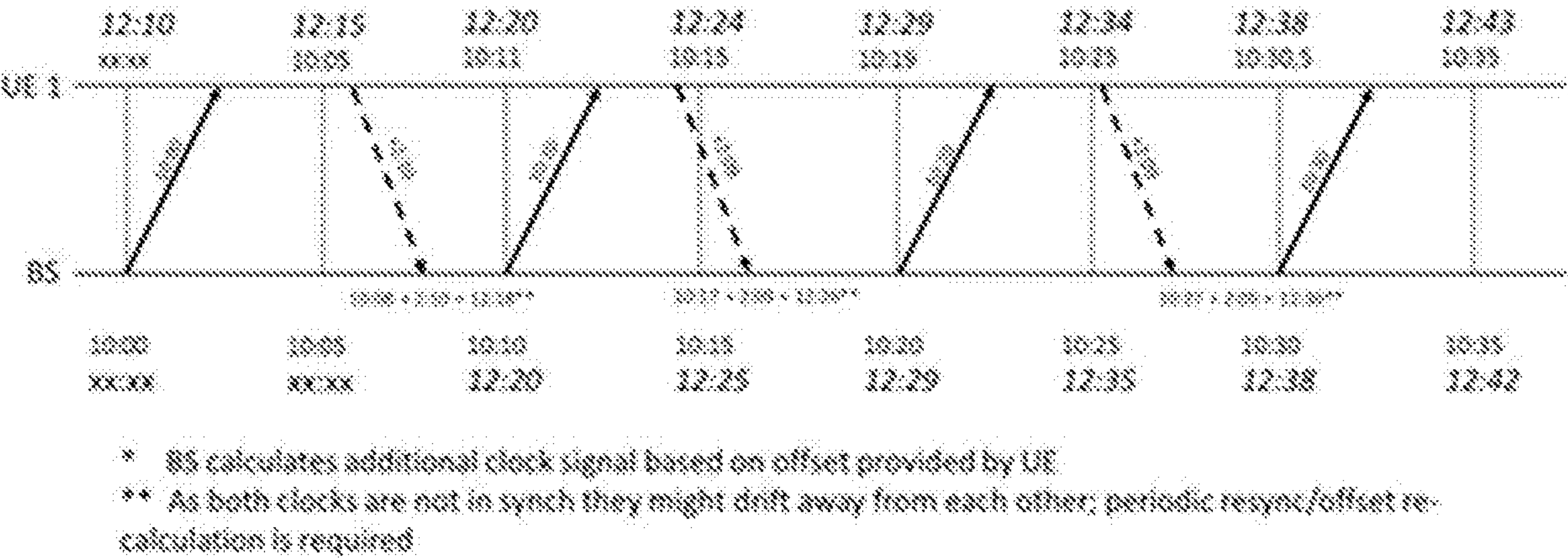


Fig. 151

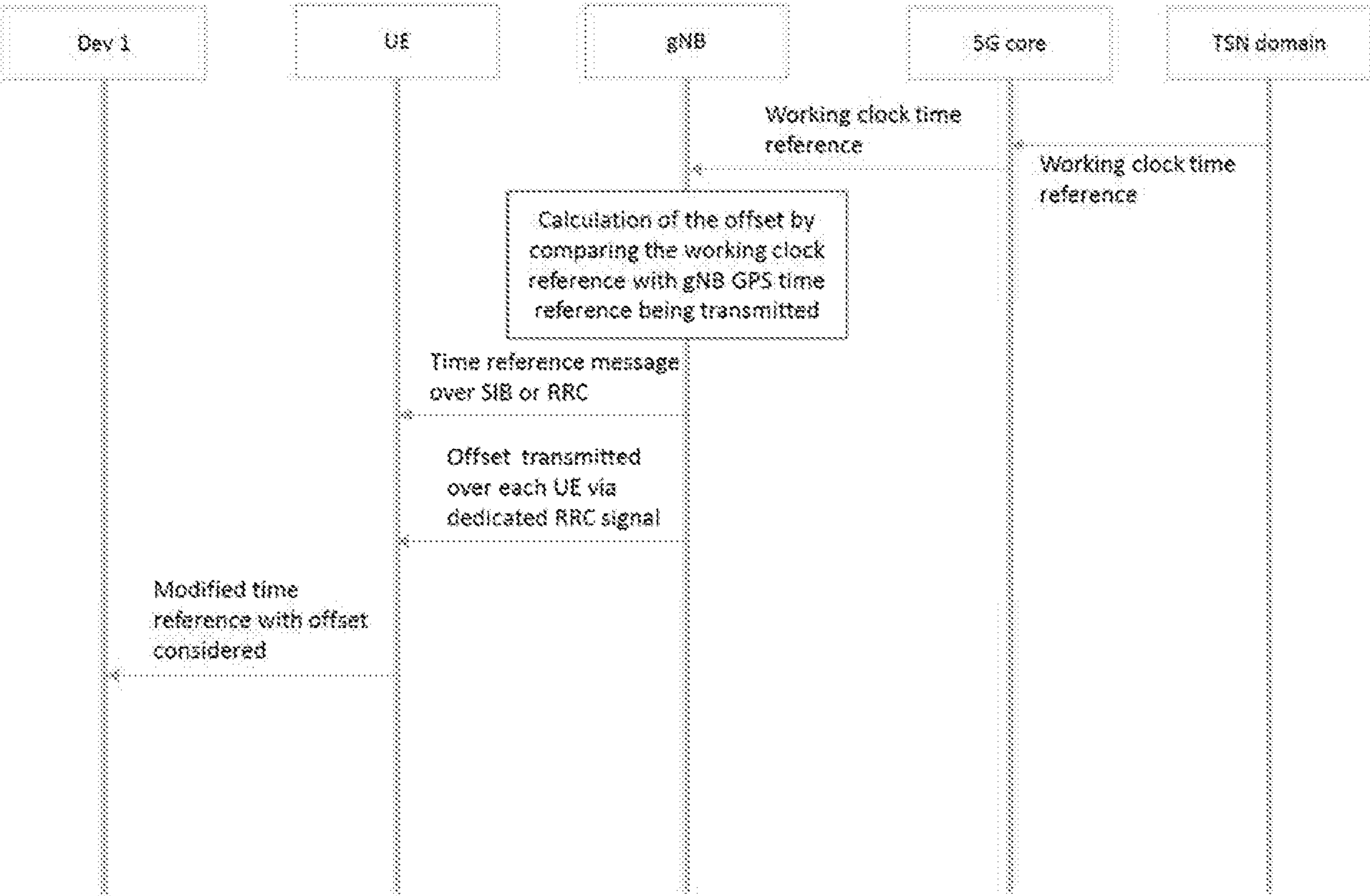


Fig. 152

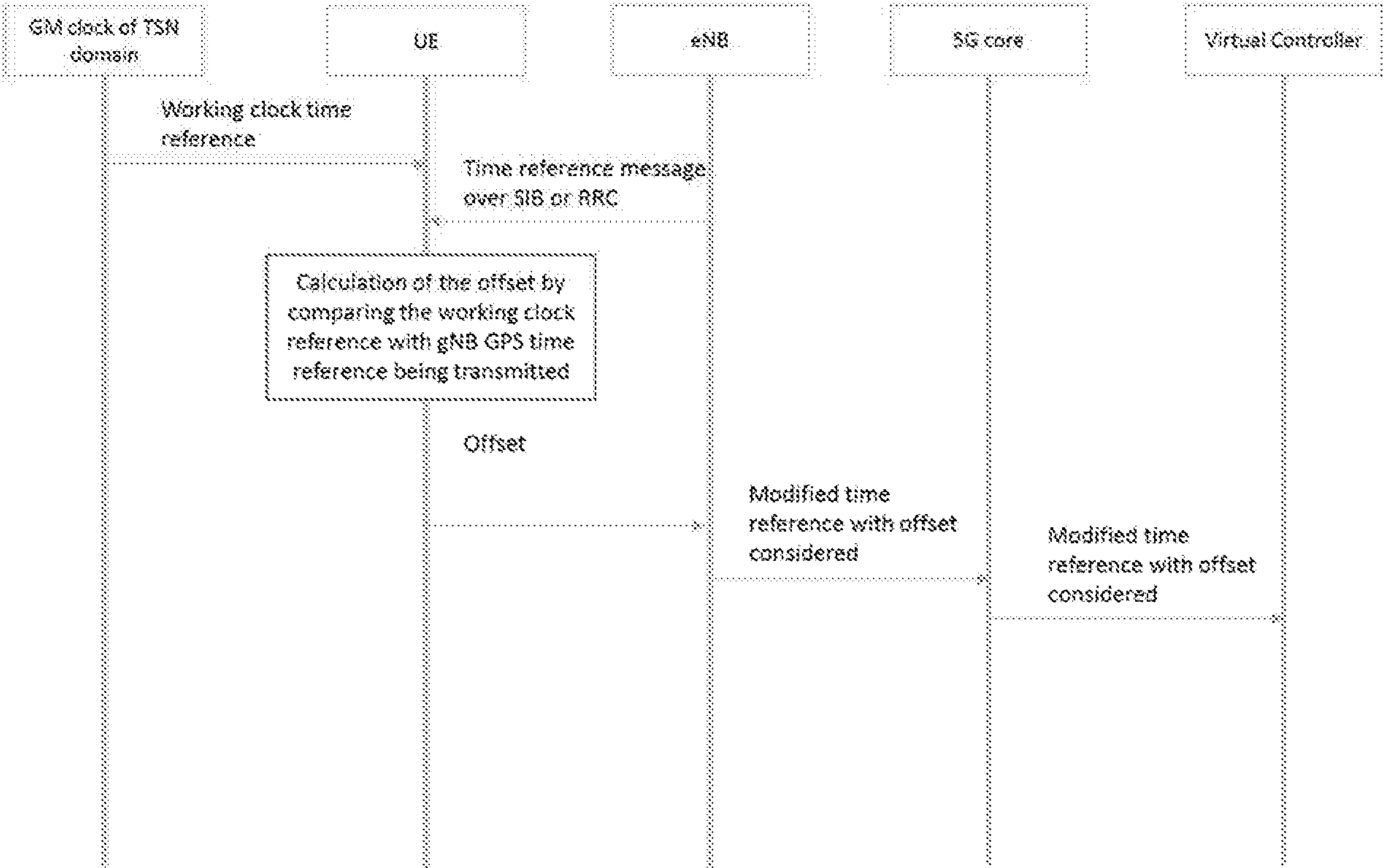


Fig. 153

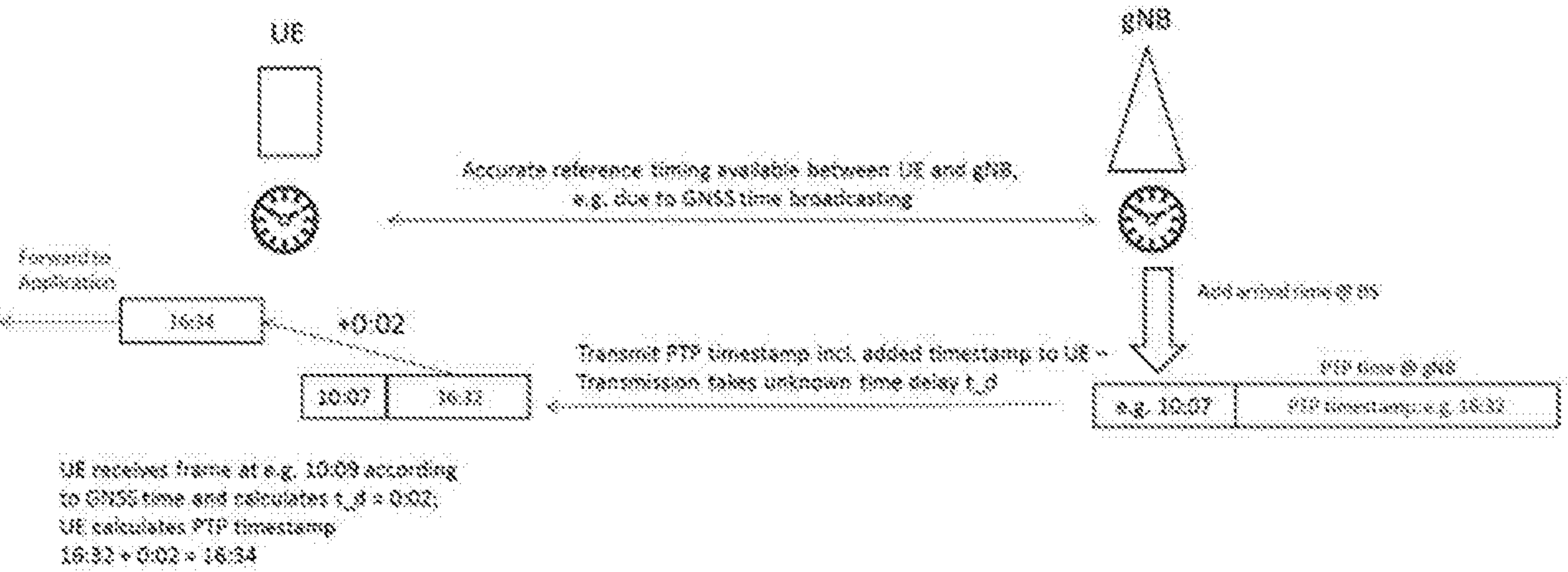


Fig. 154

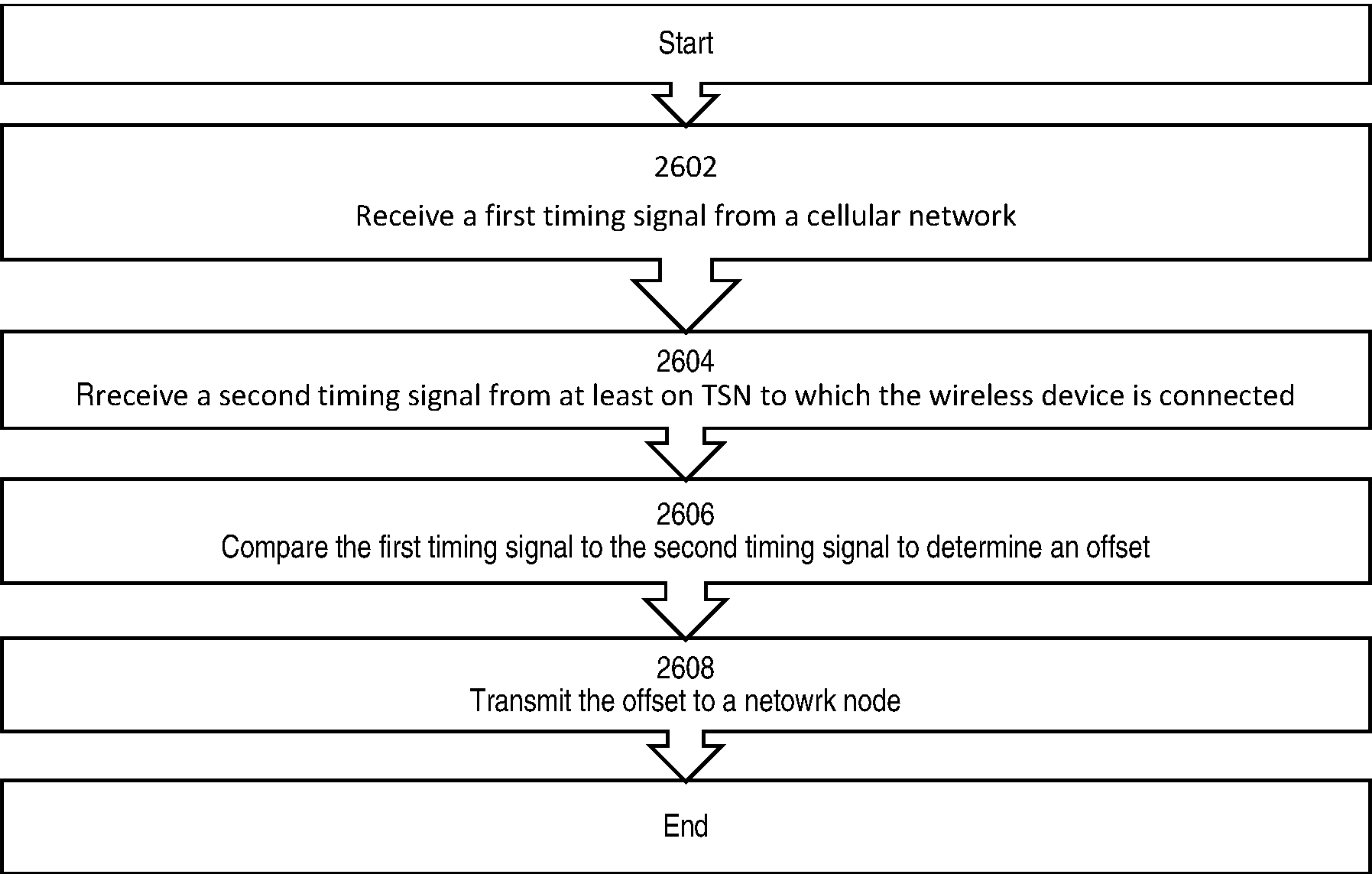


Fig. 155

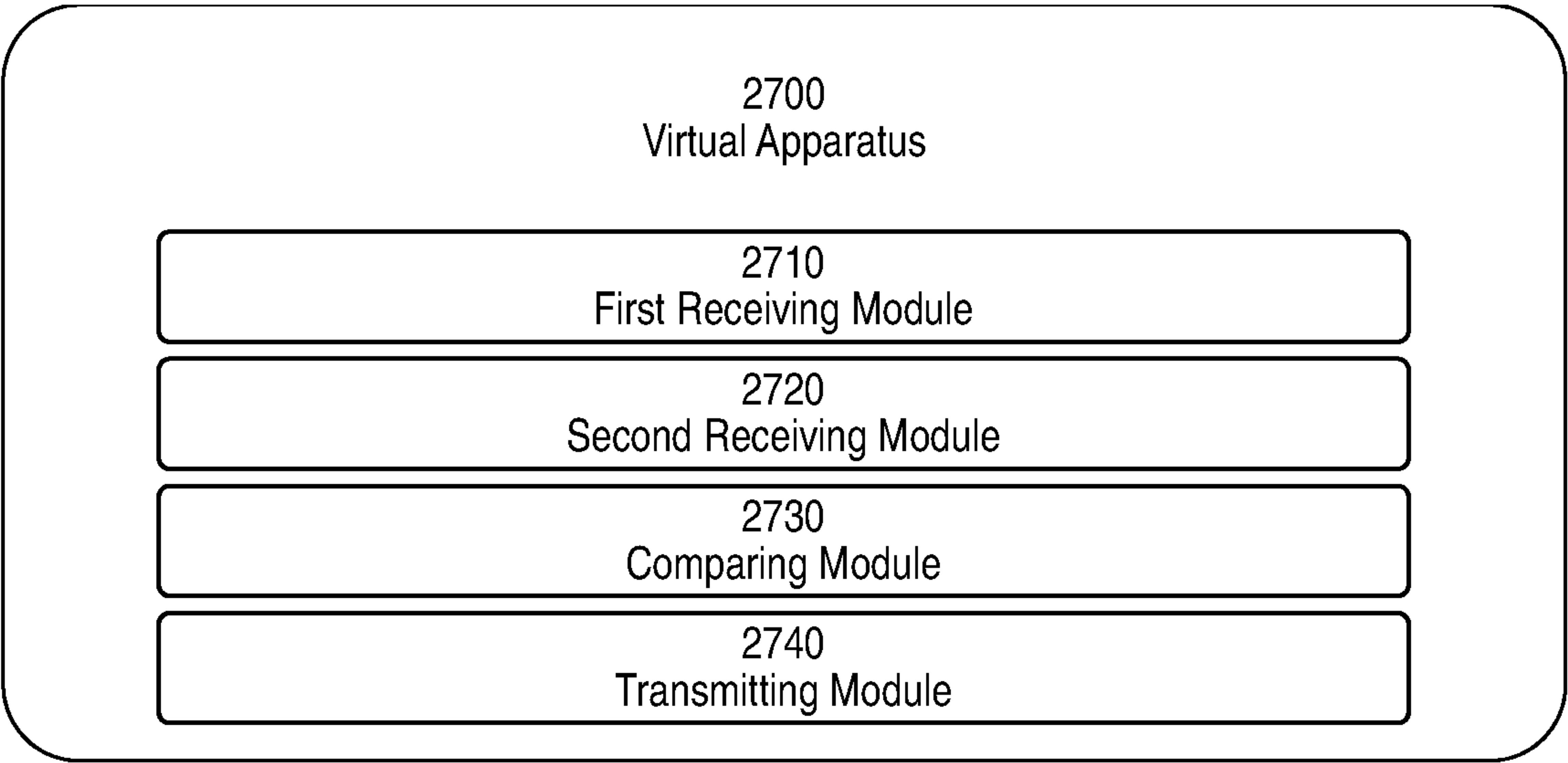


Figure 156

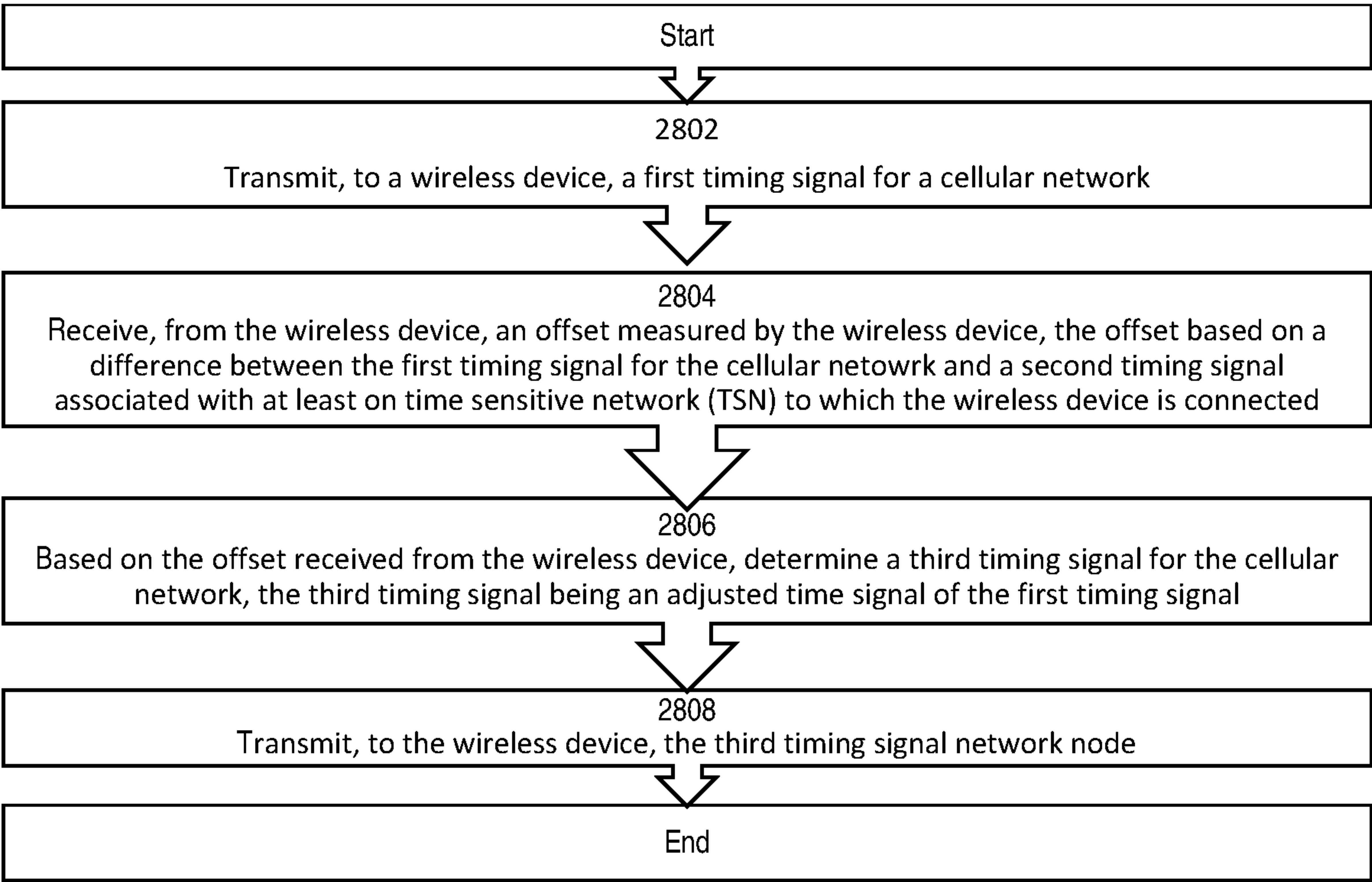


Fig. 157

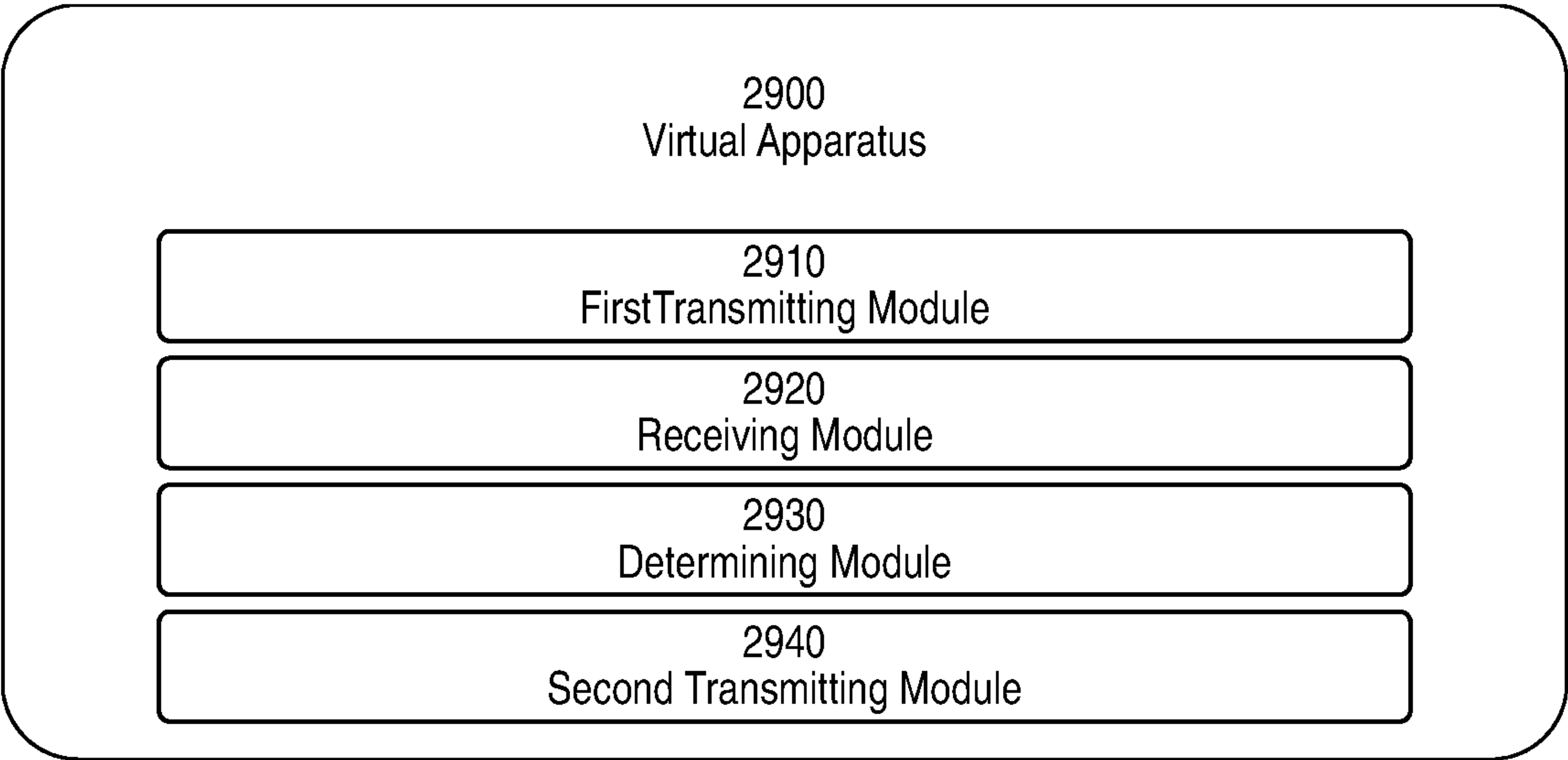


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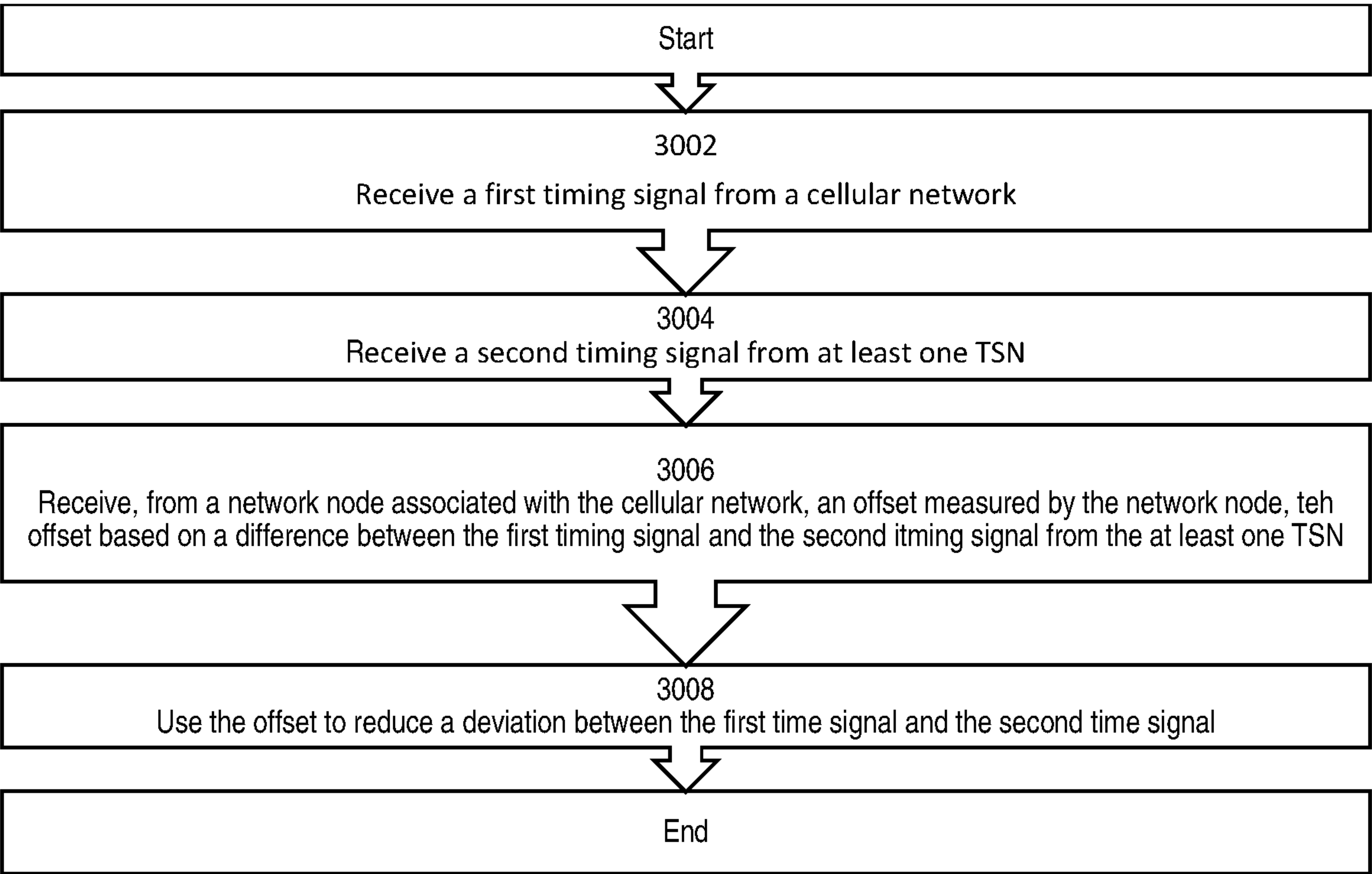


Fig. 159

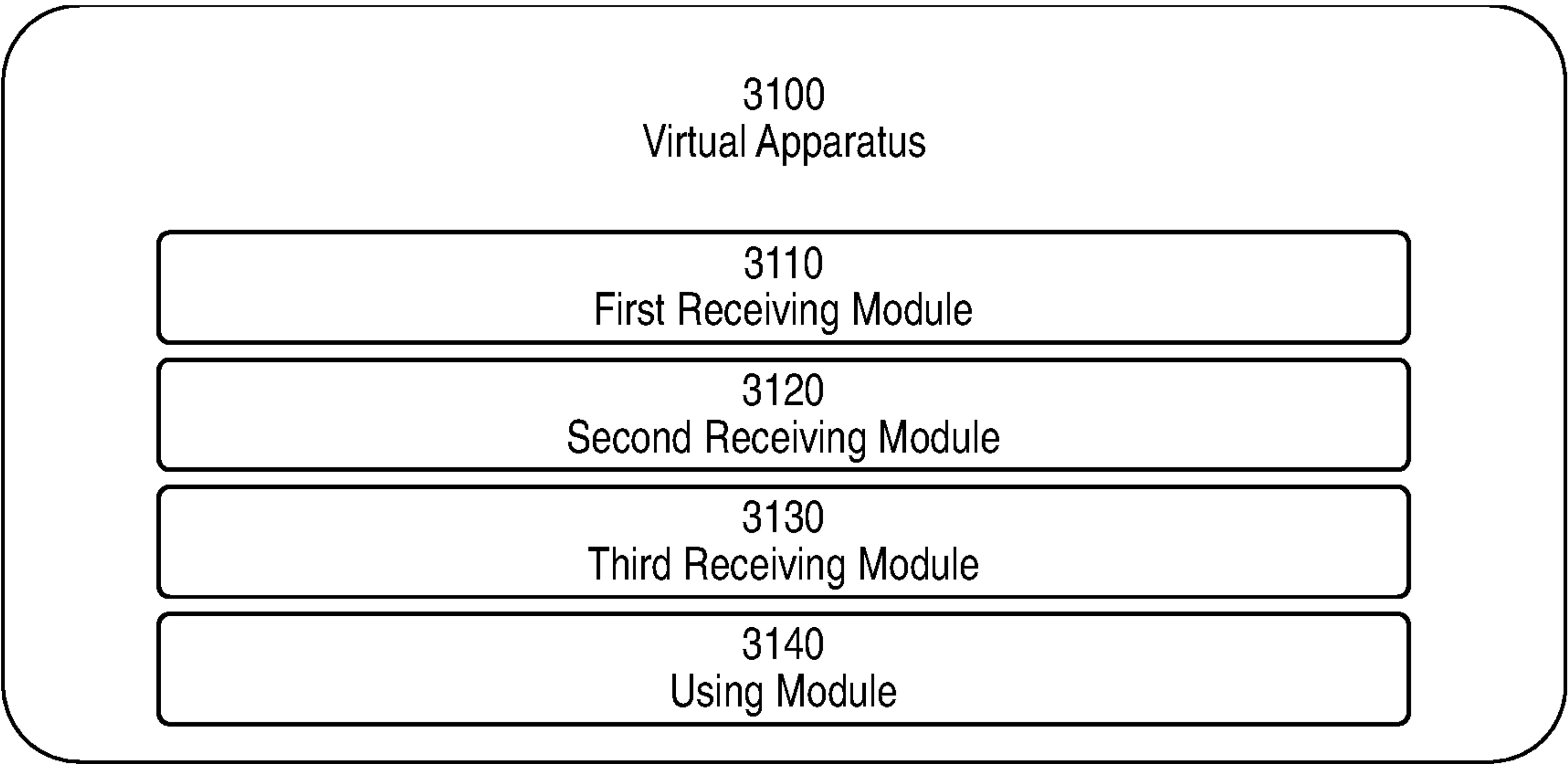


Fig. 160

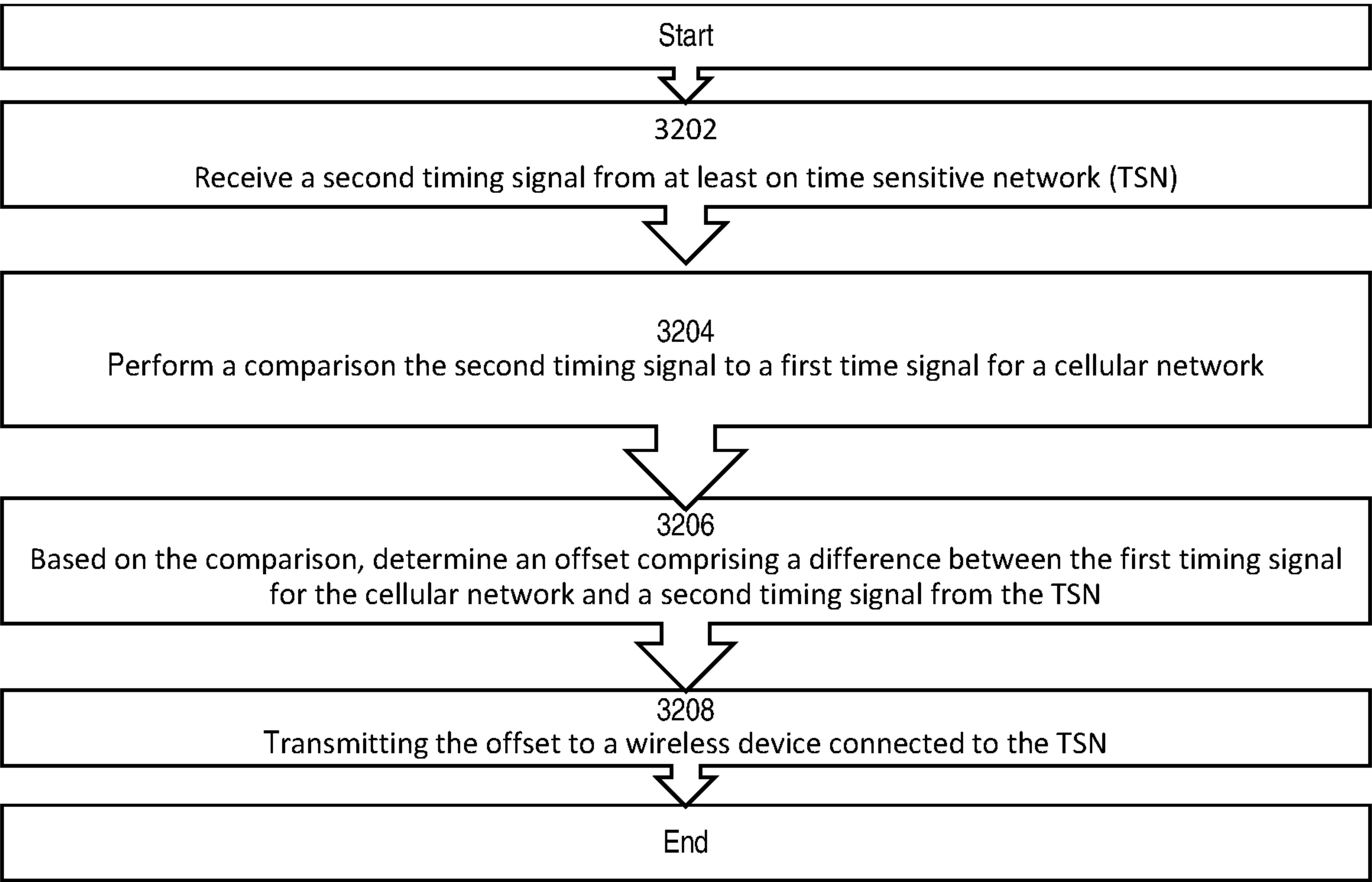


Fig. 161

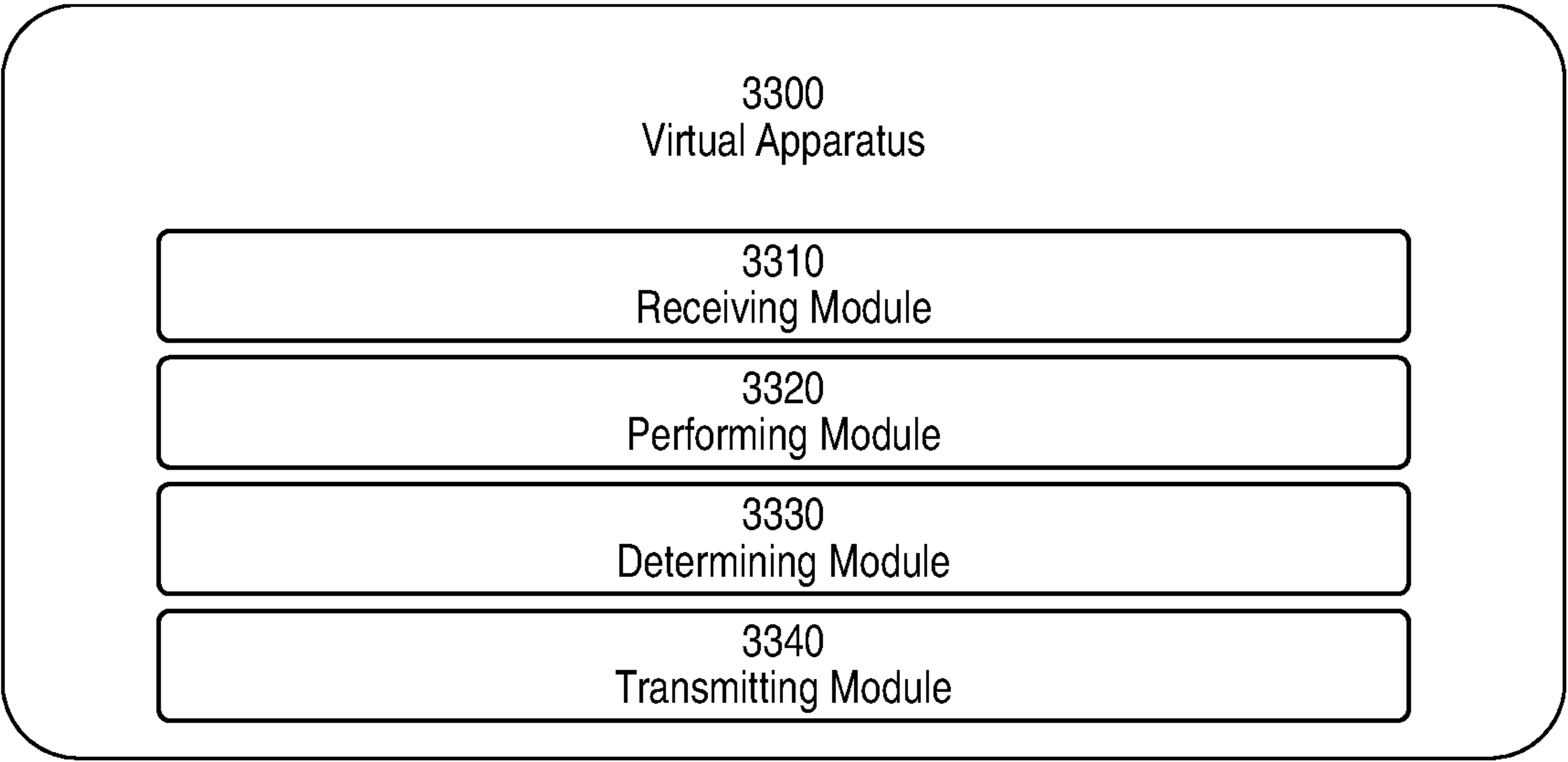


Fig. 162

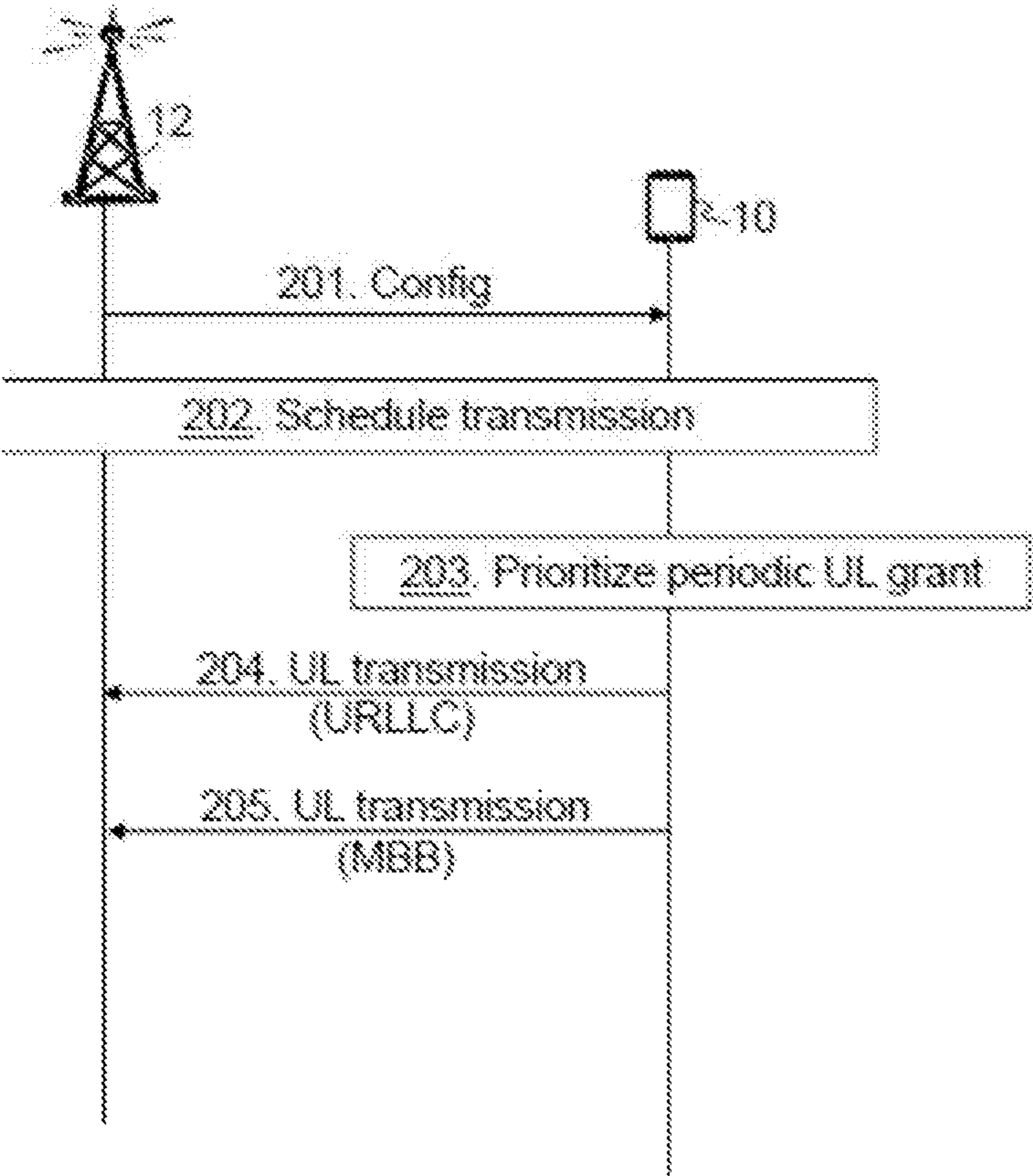


Fig. 163

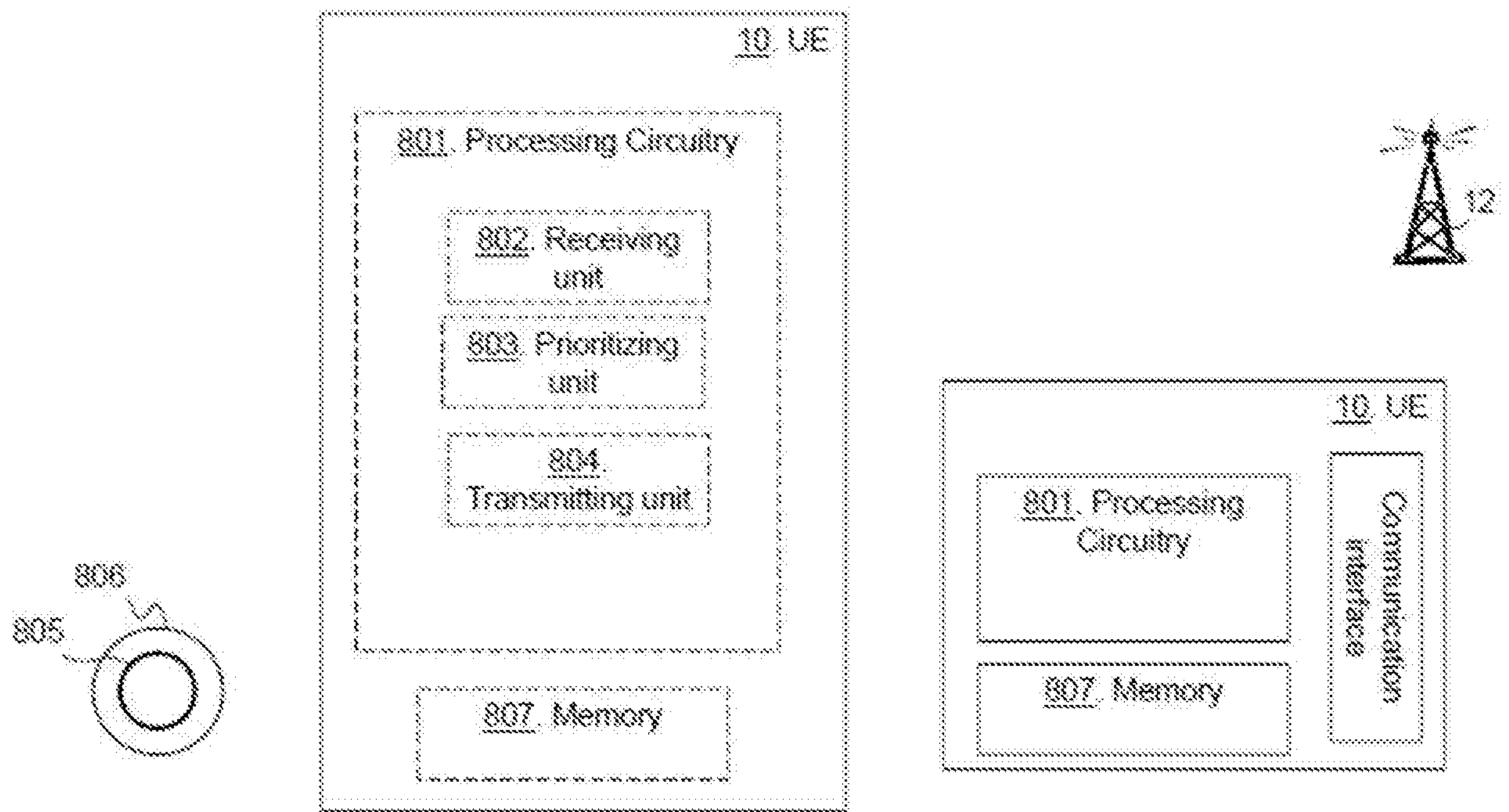


Fig. 164

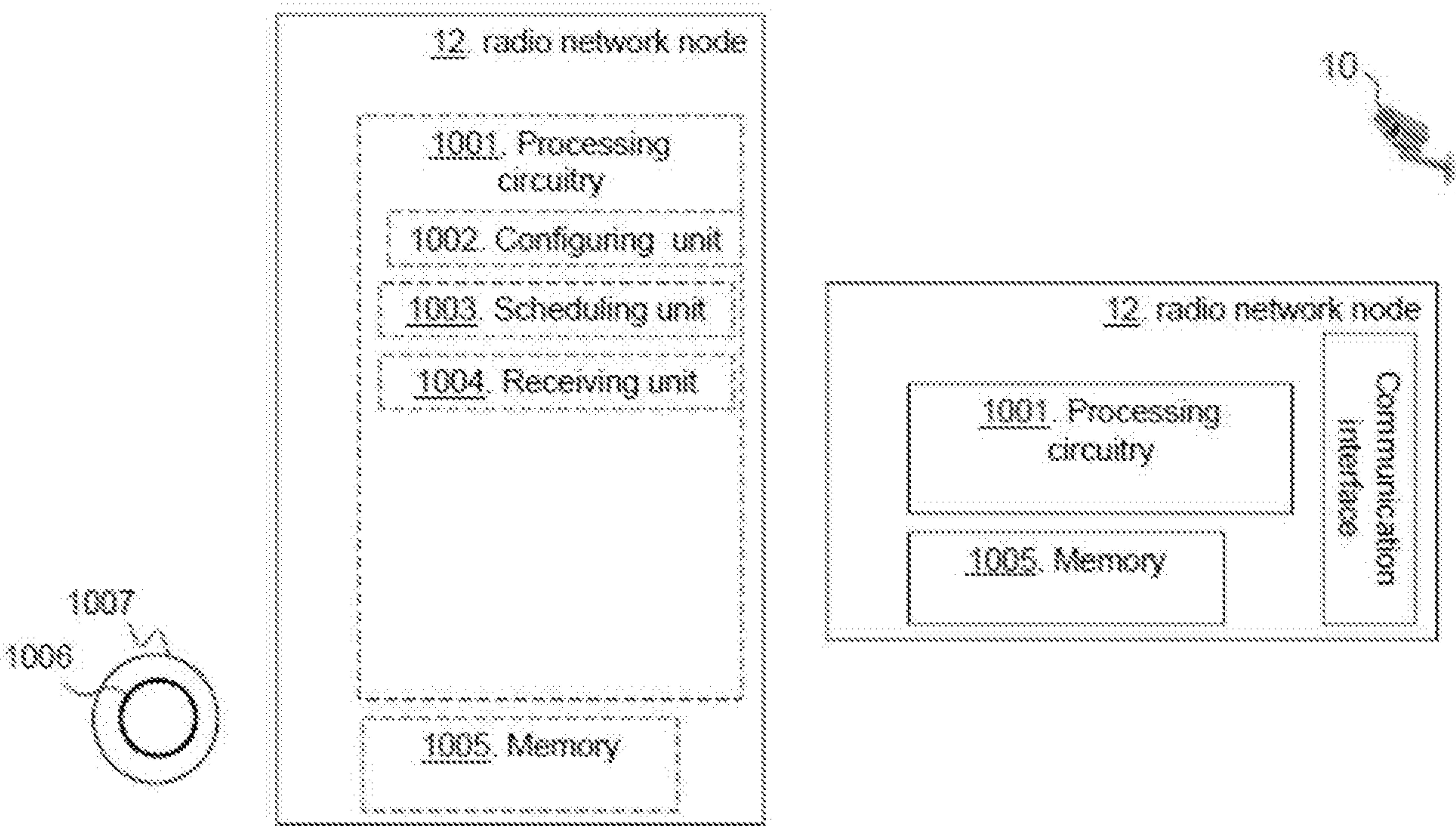


Fig. 165

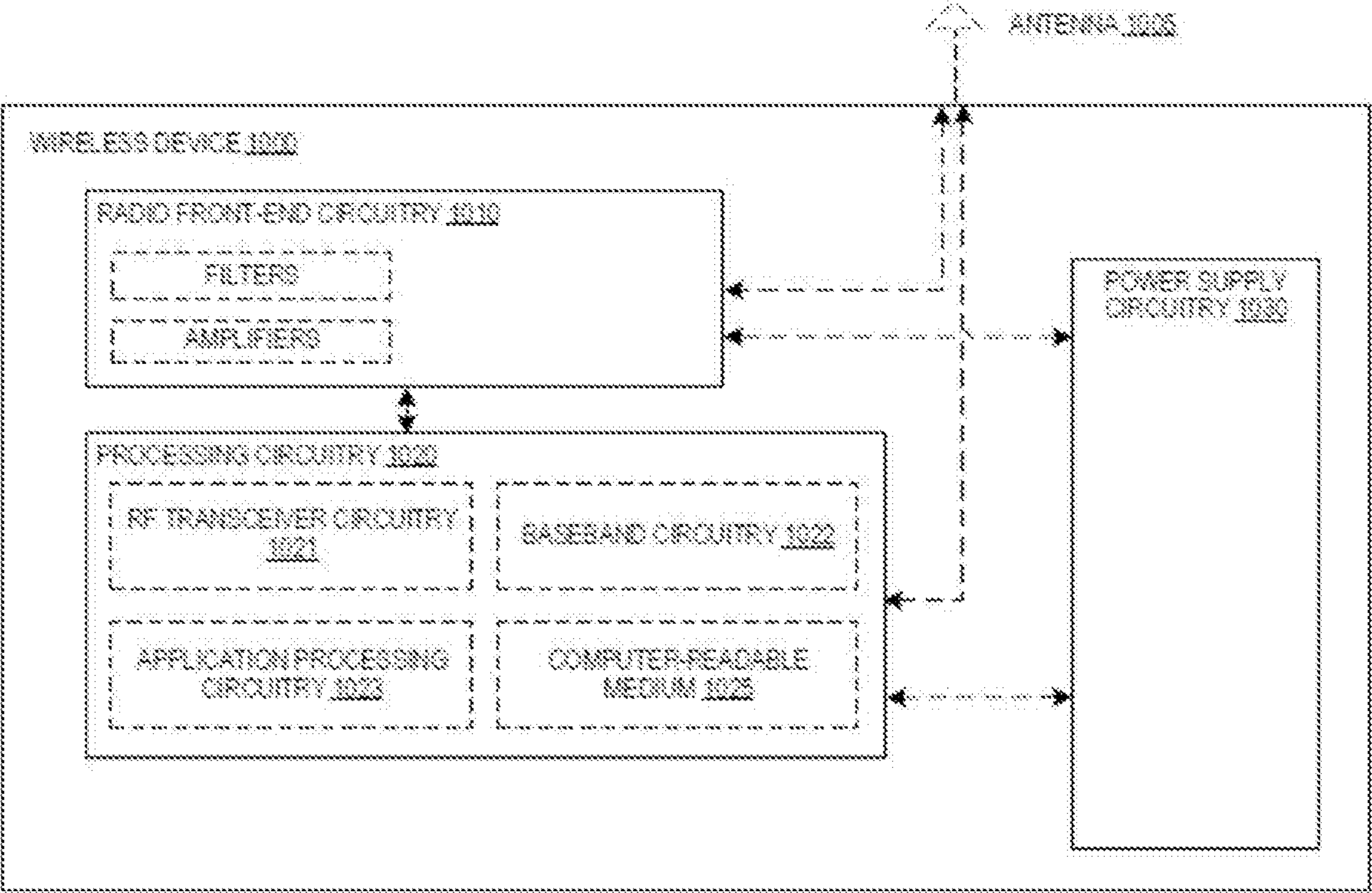


Fig. 166

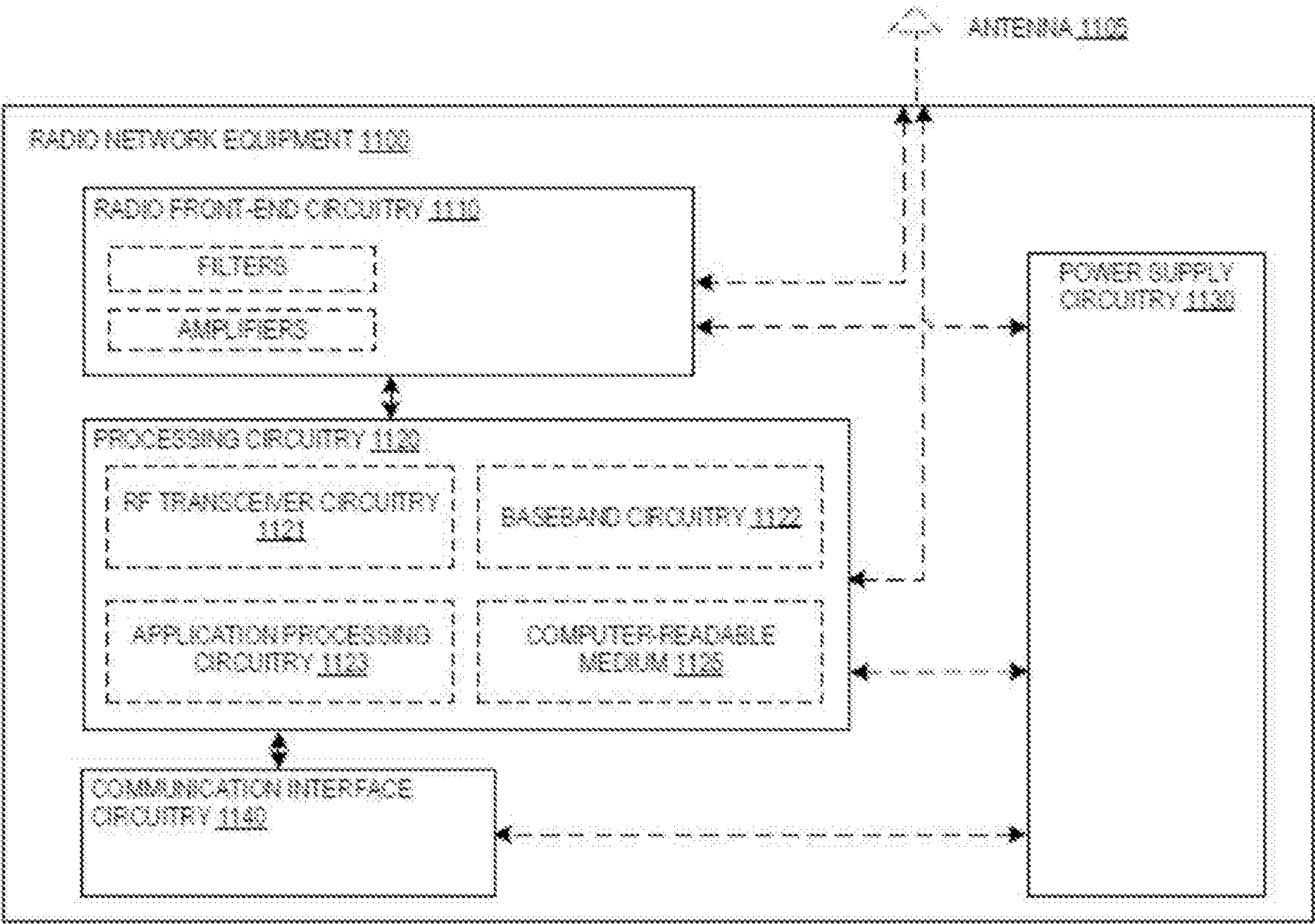


Fig. 167

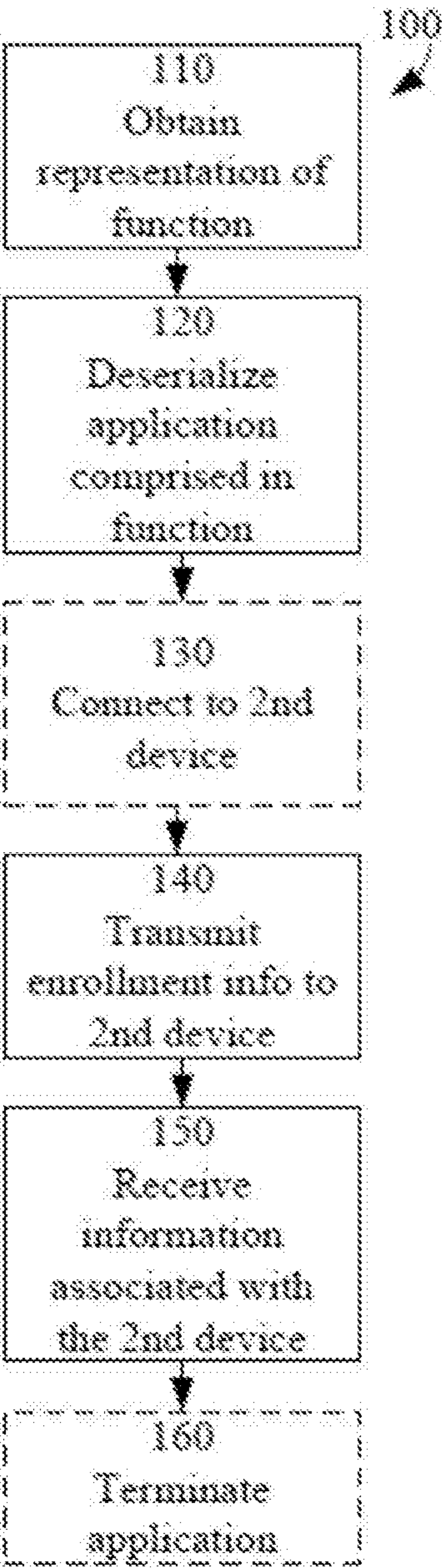
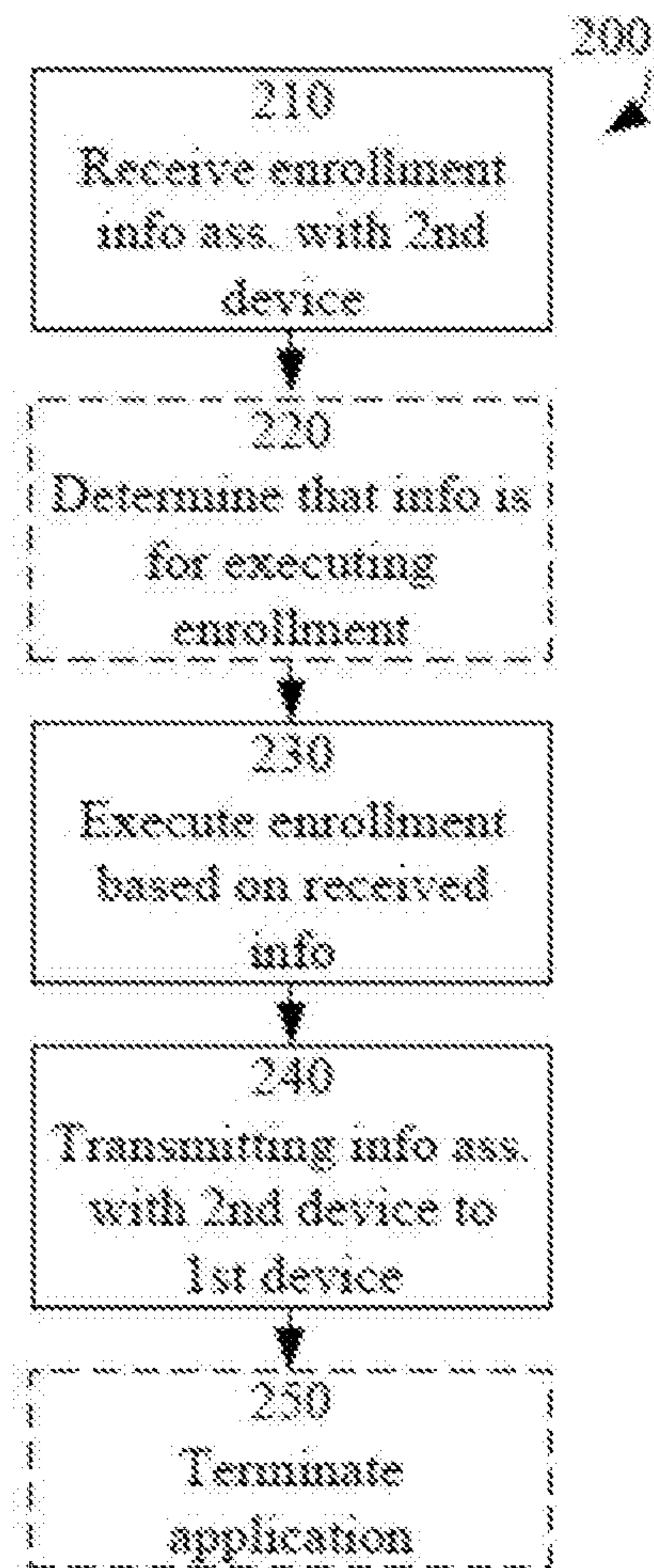


Fig. 168

**Fig. 169**

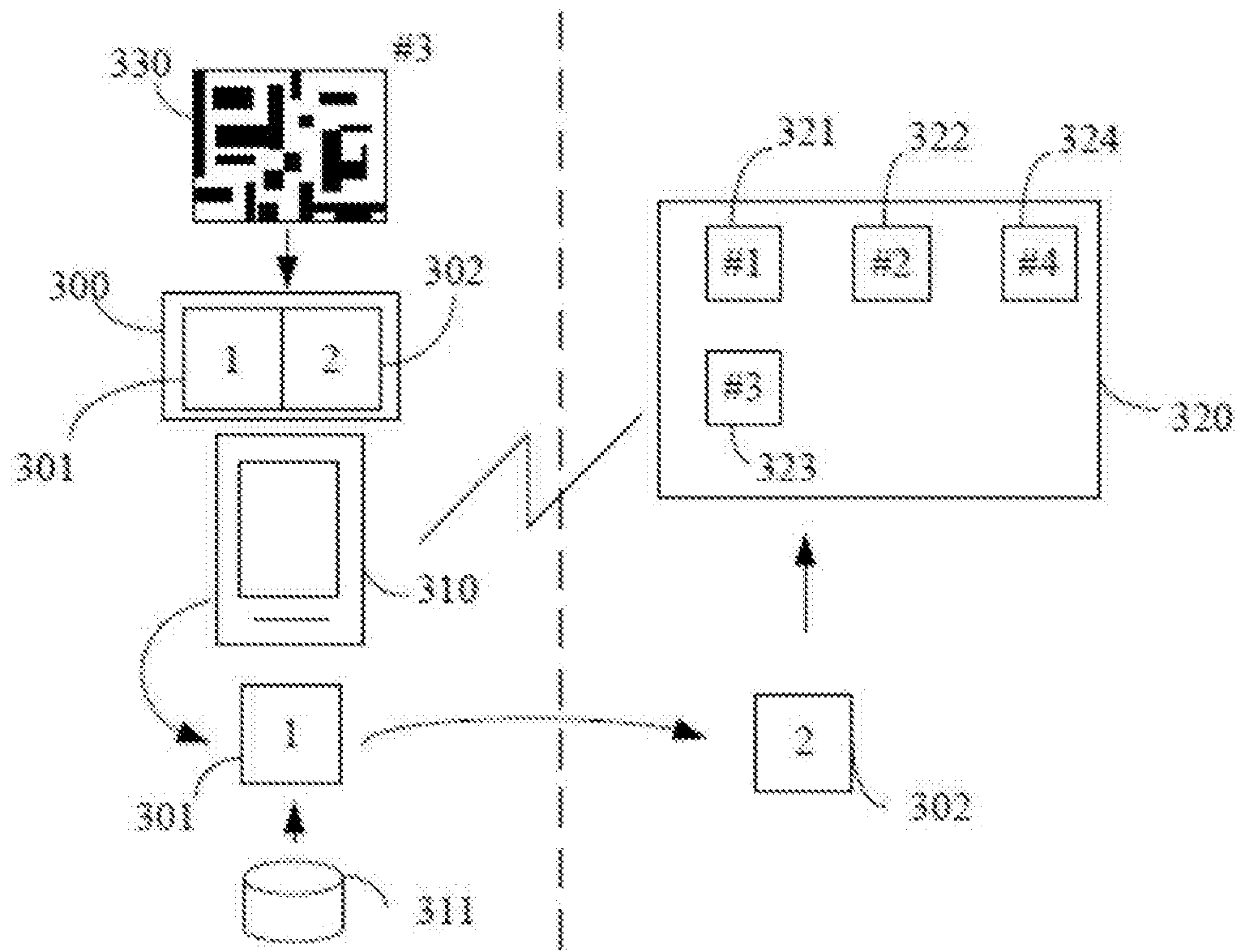
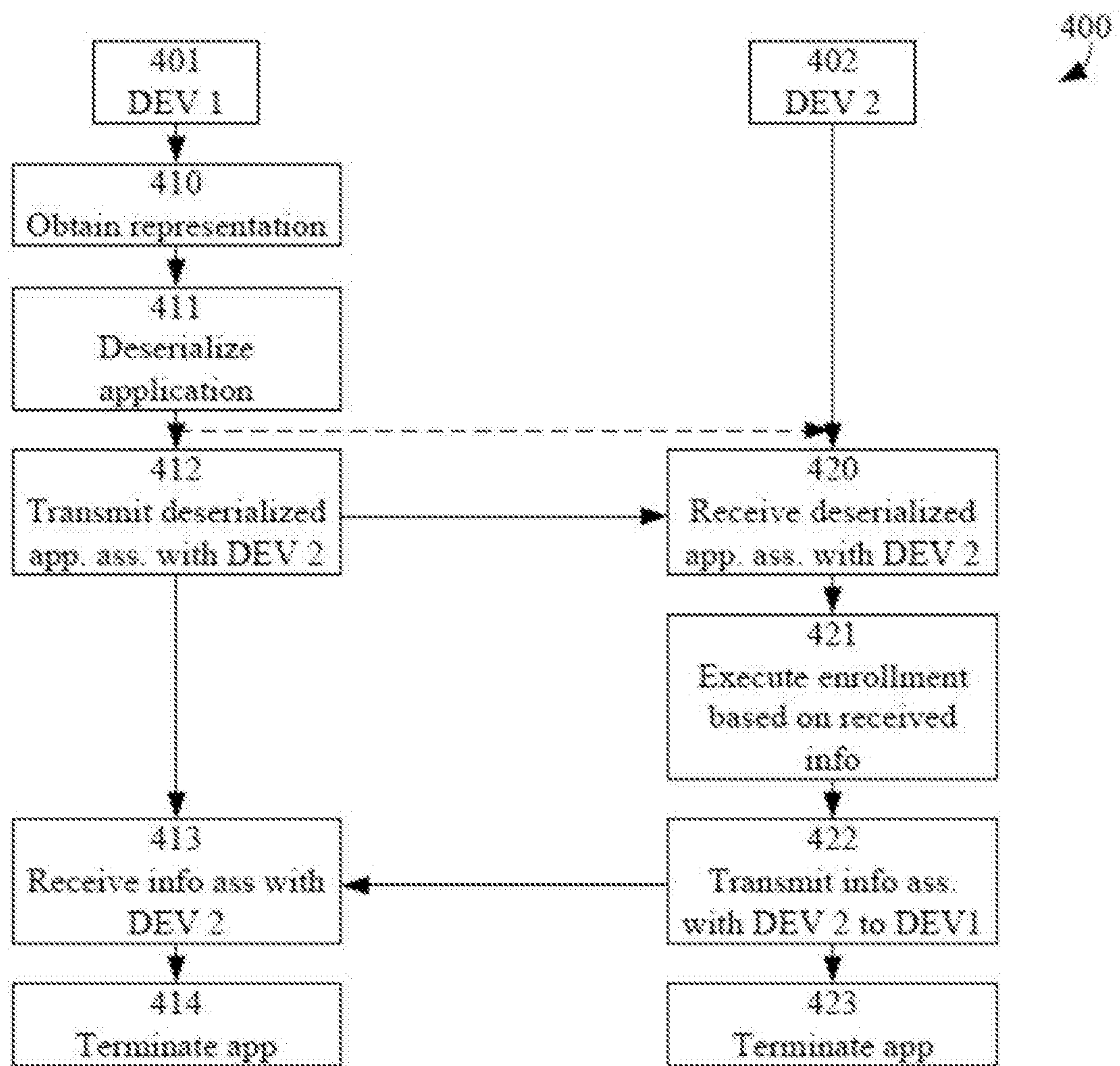


Fig. 170

**Fig. 171**

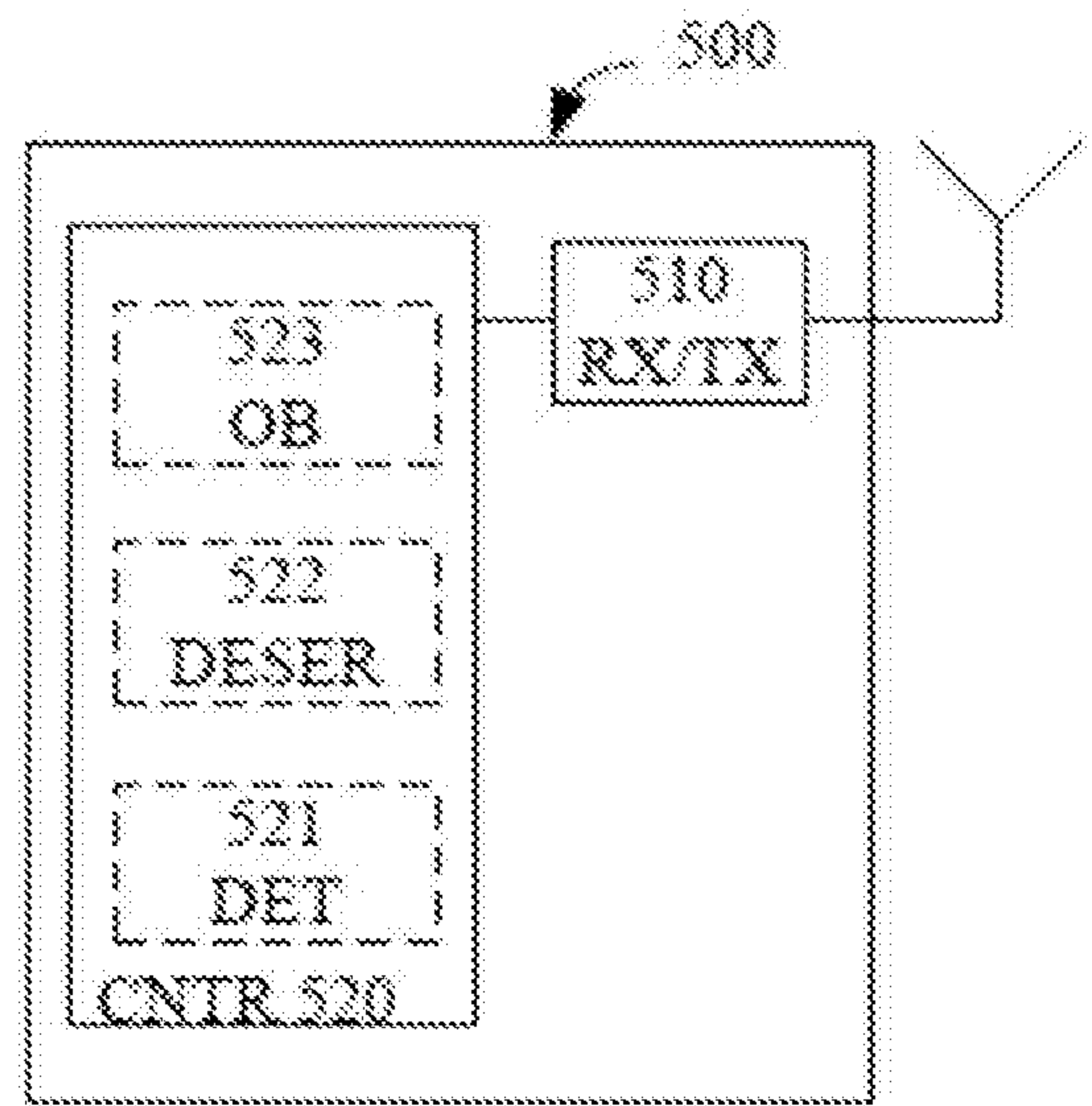


Fig. 172

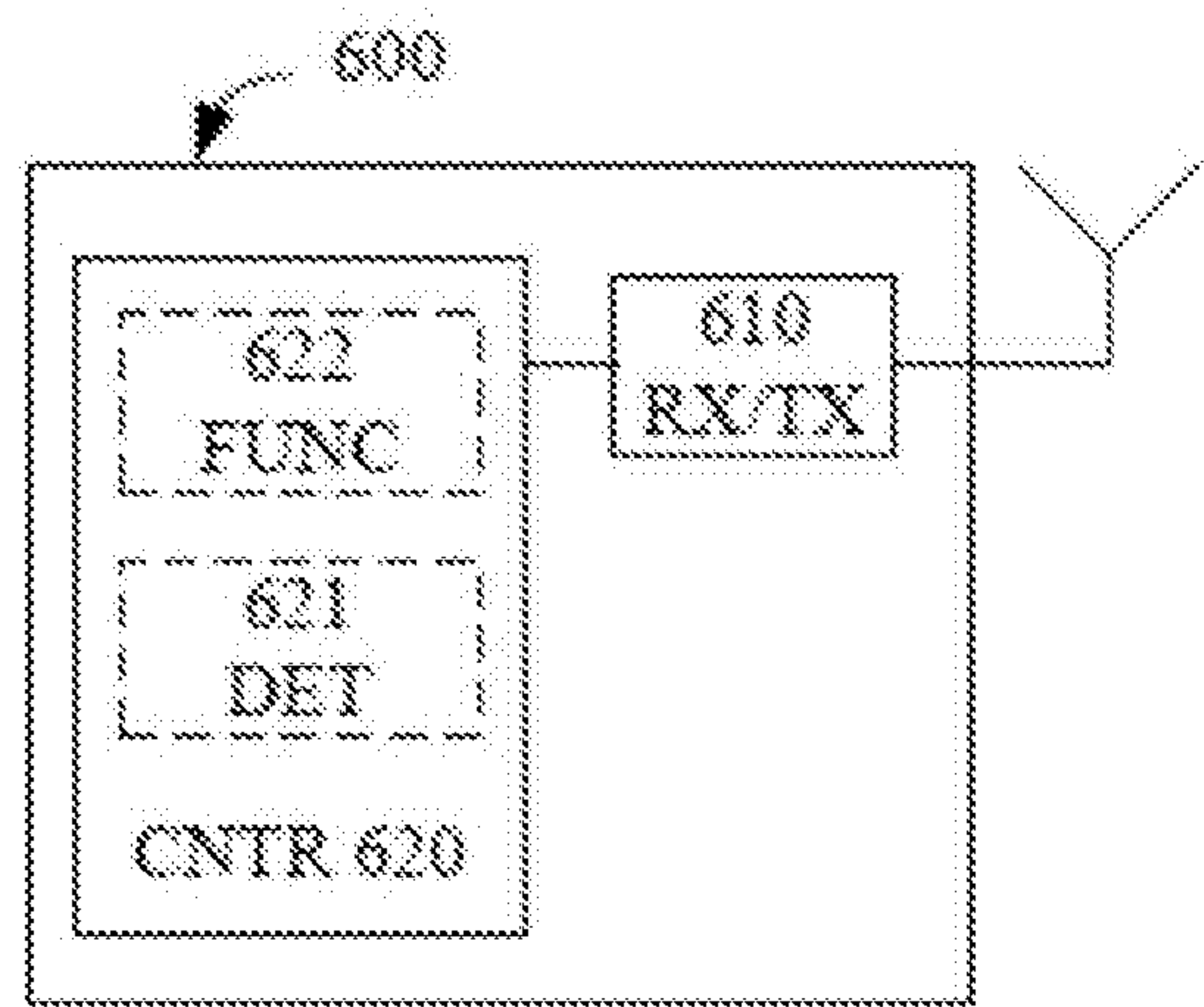


Fig. 173

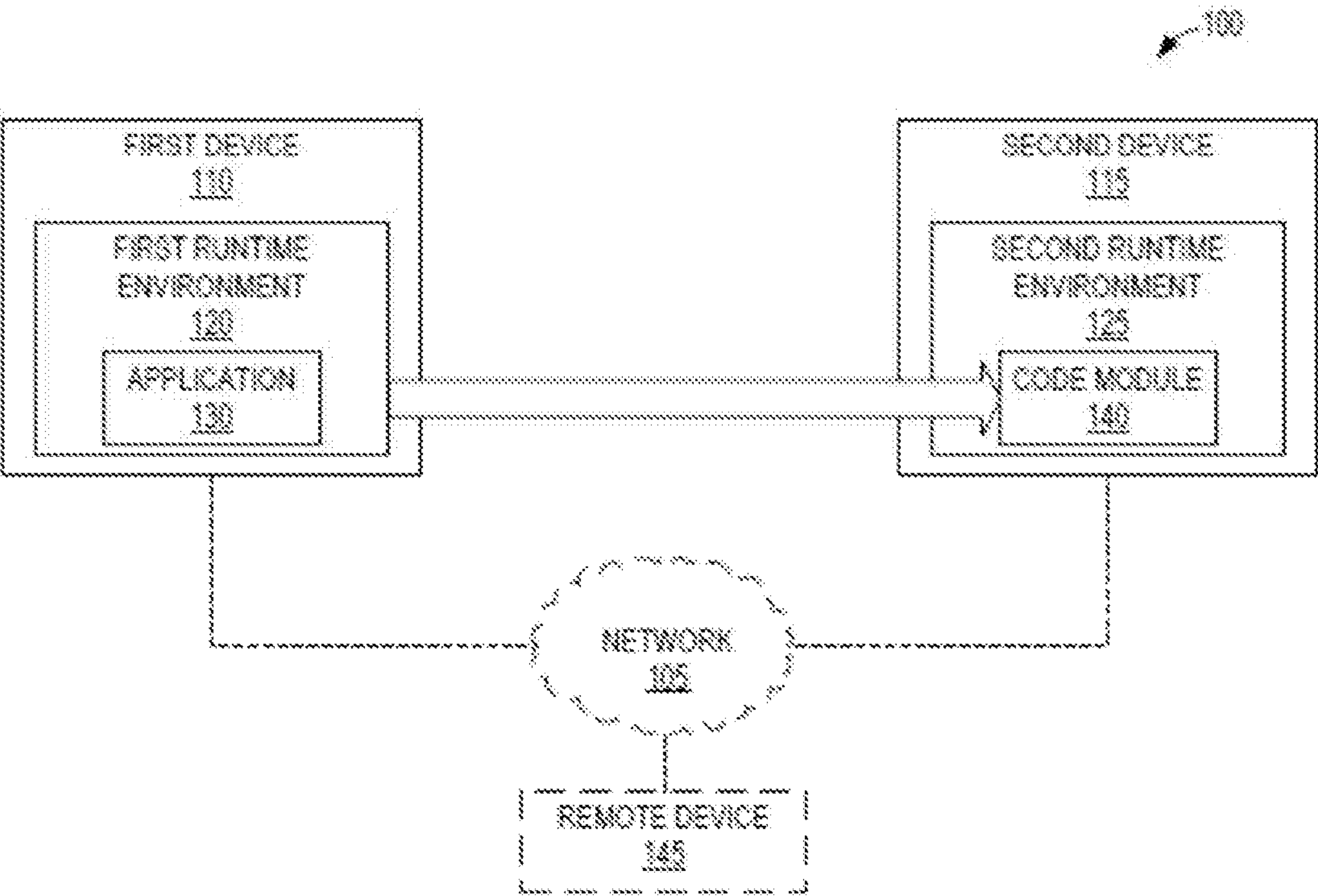


Fig. 174

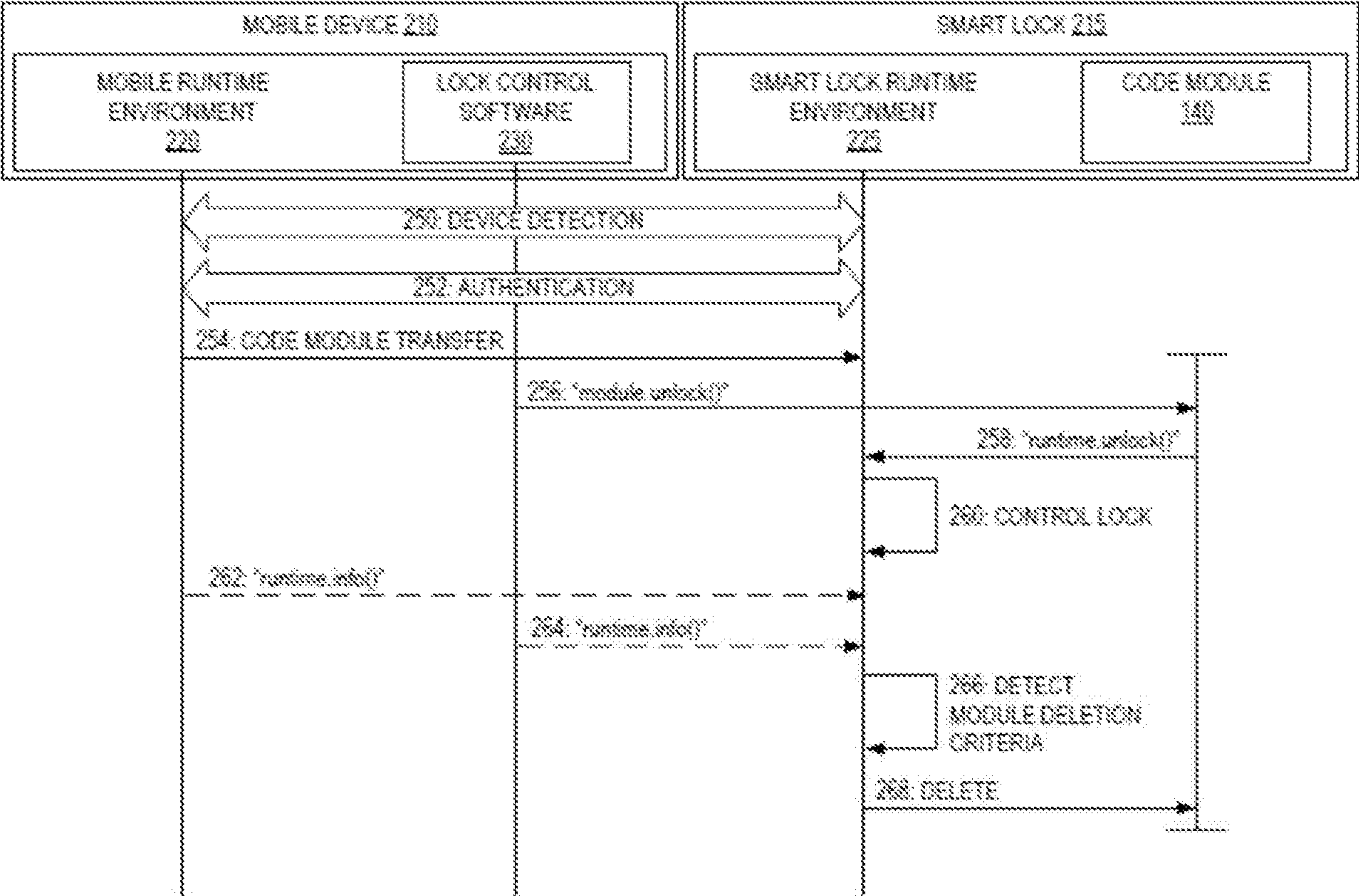


Fig. 175

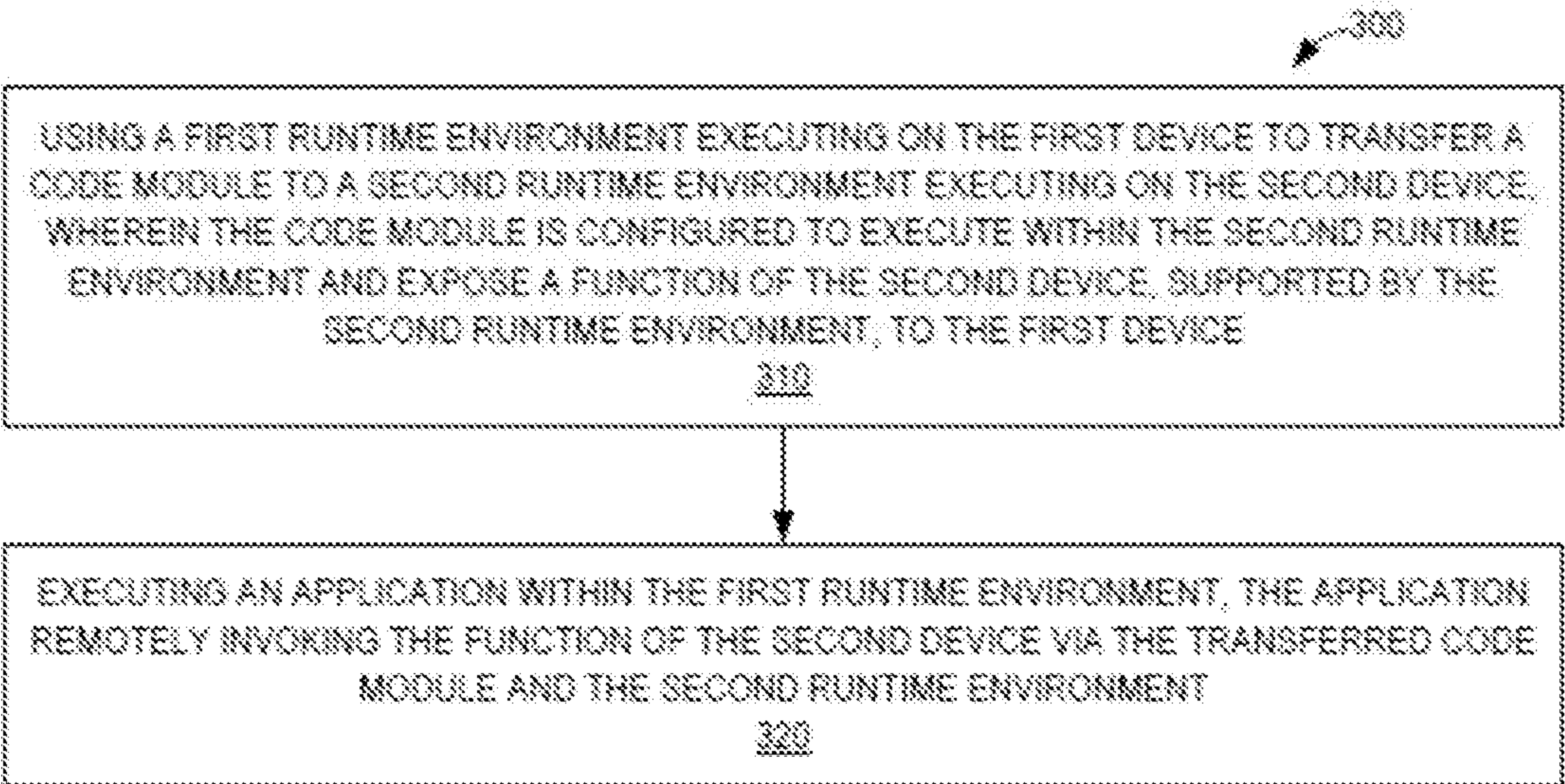
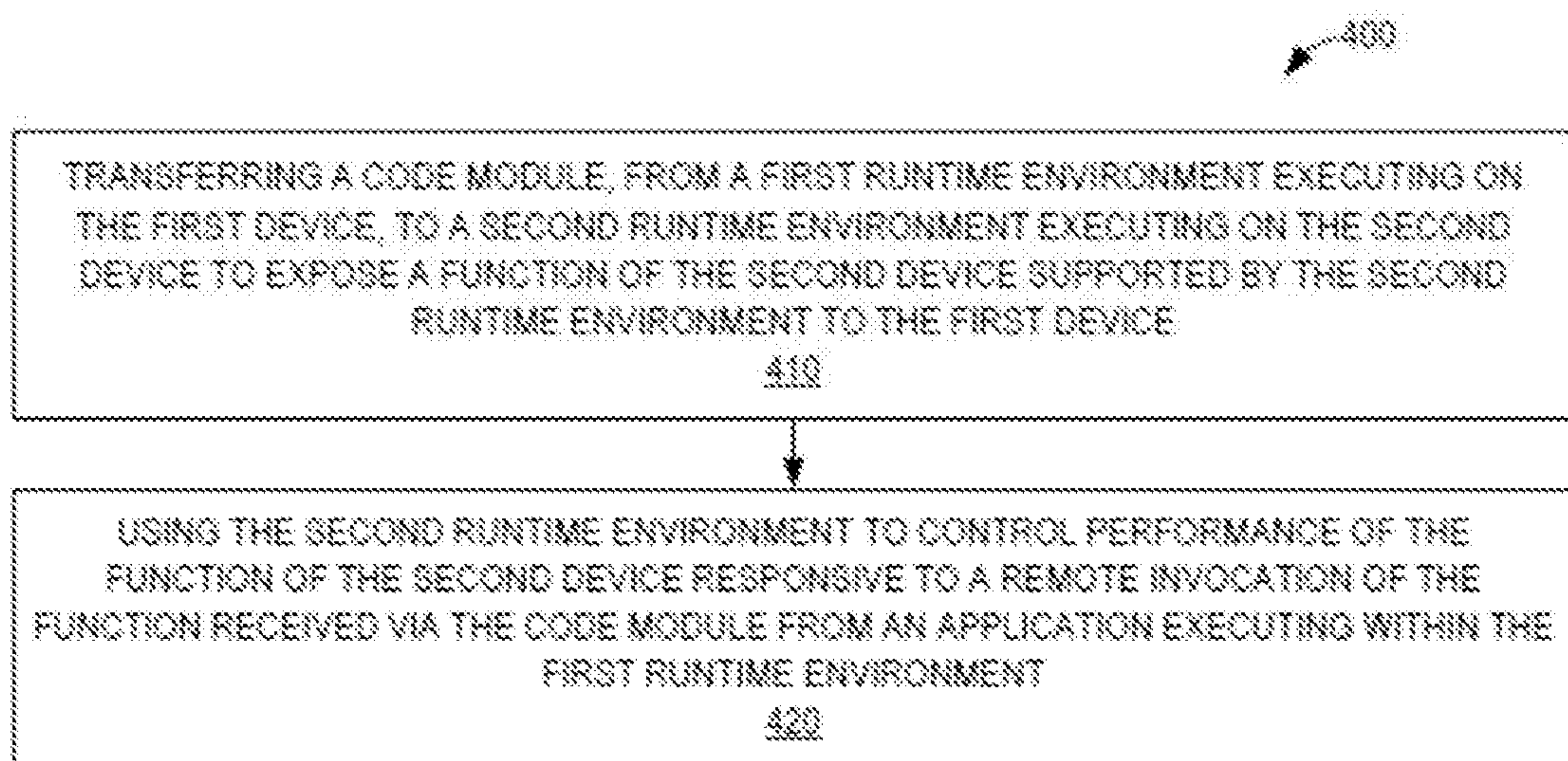
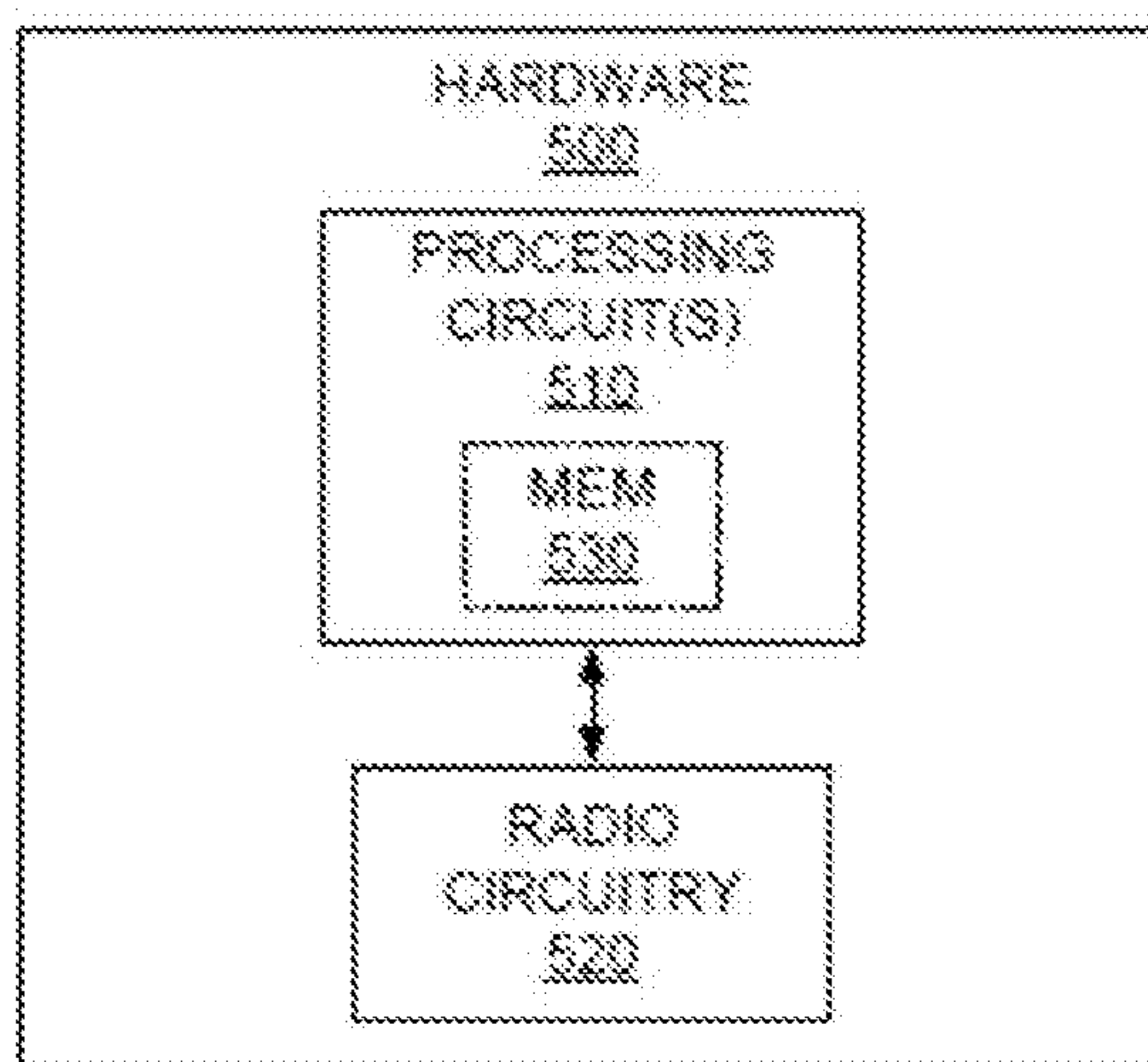


Fig. 176

**Fig. 177****Fig. 178**

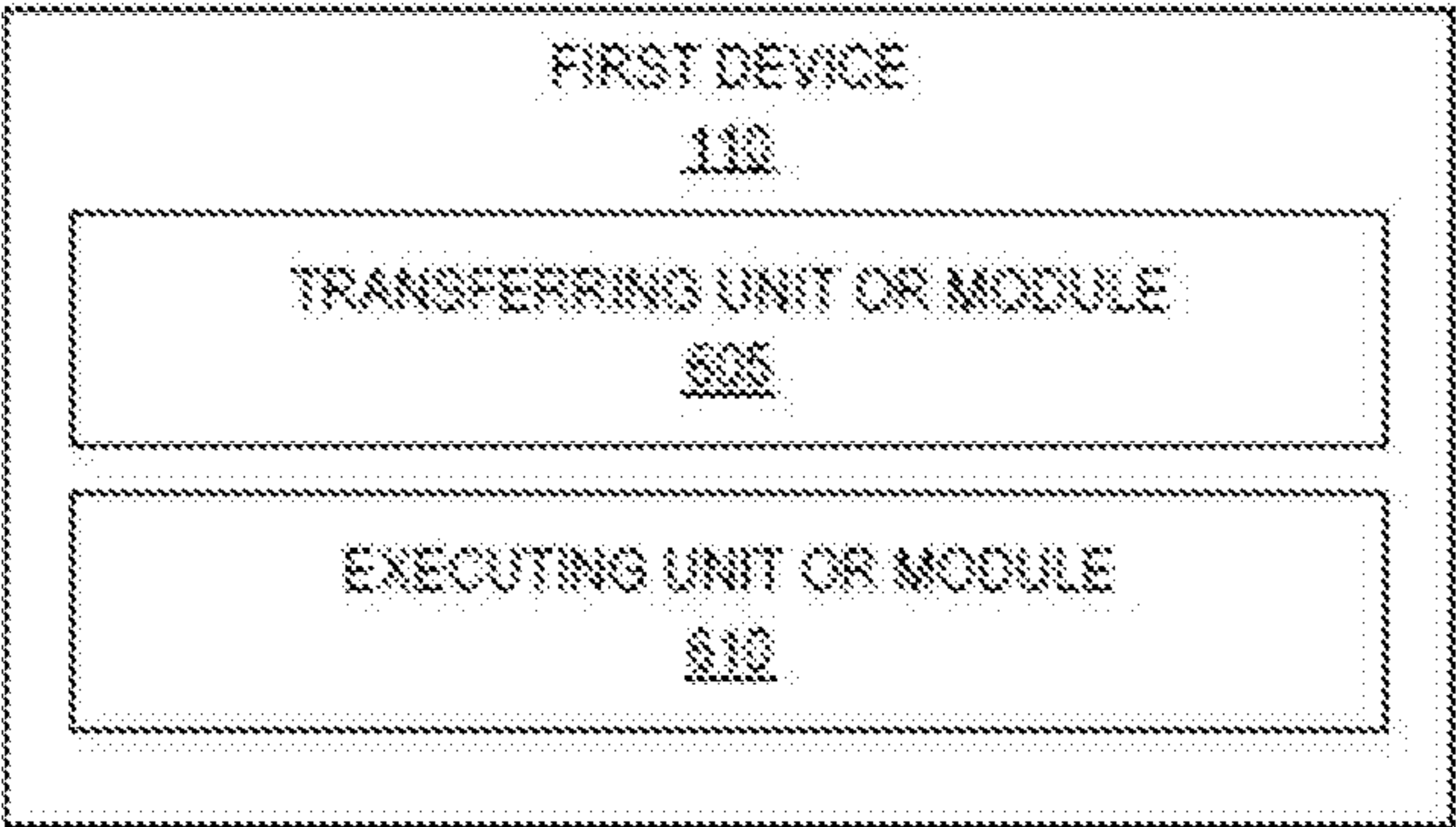


Fig. 179

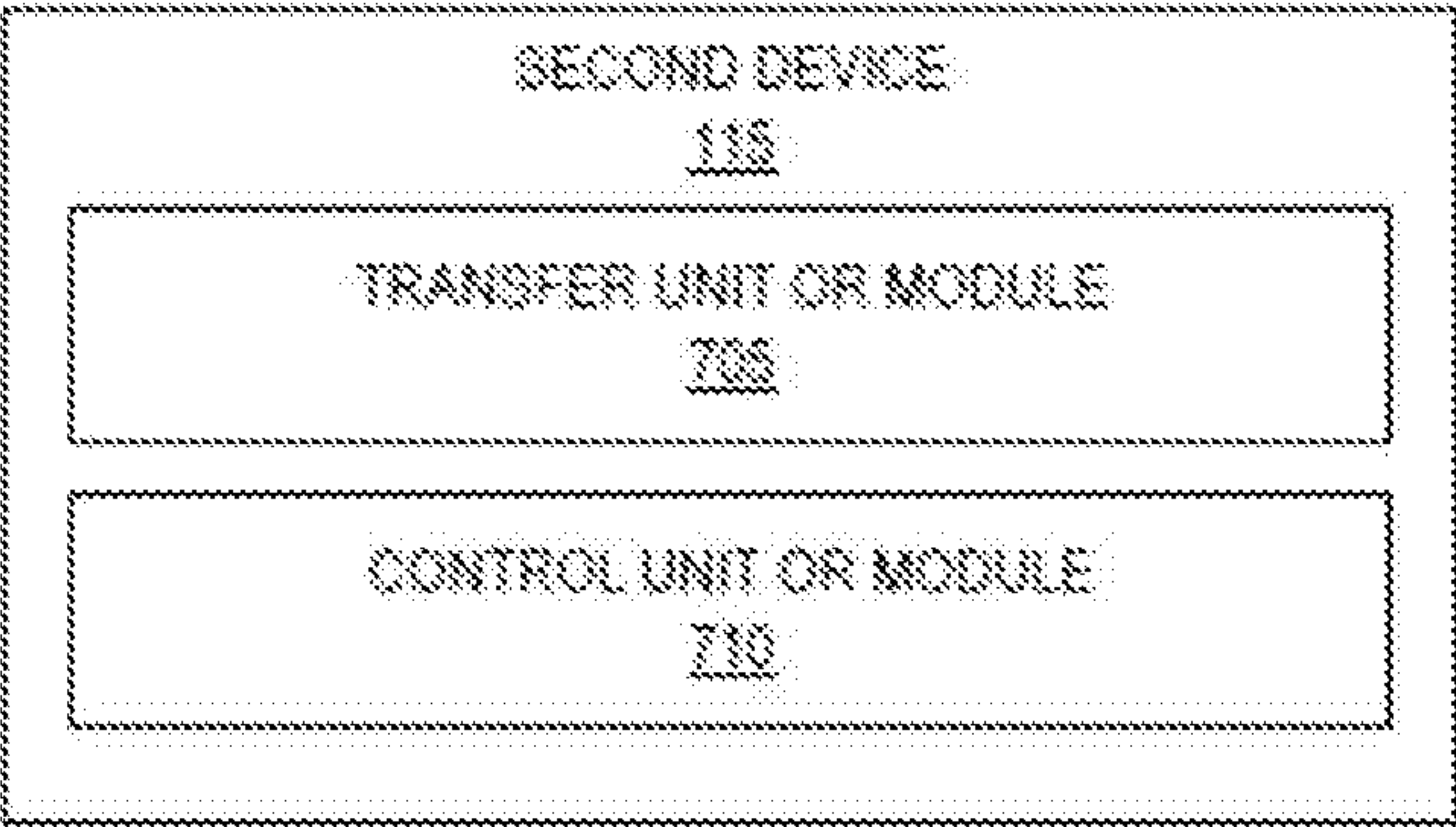


Fig. 180

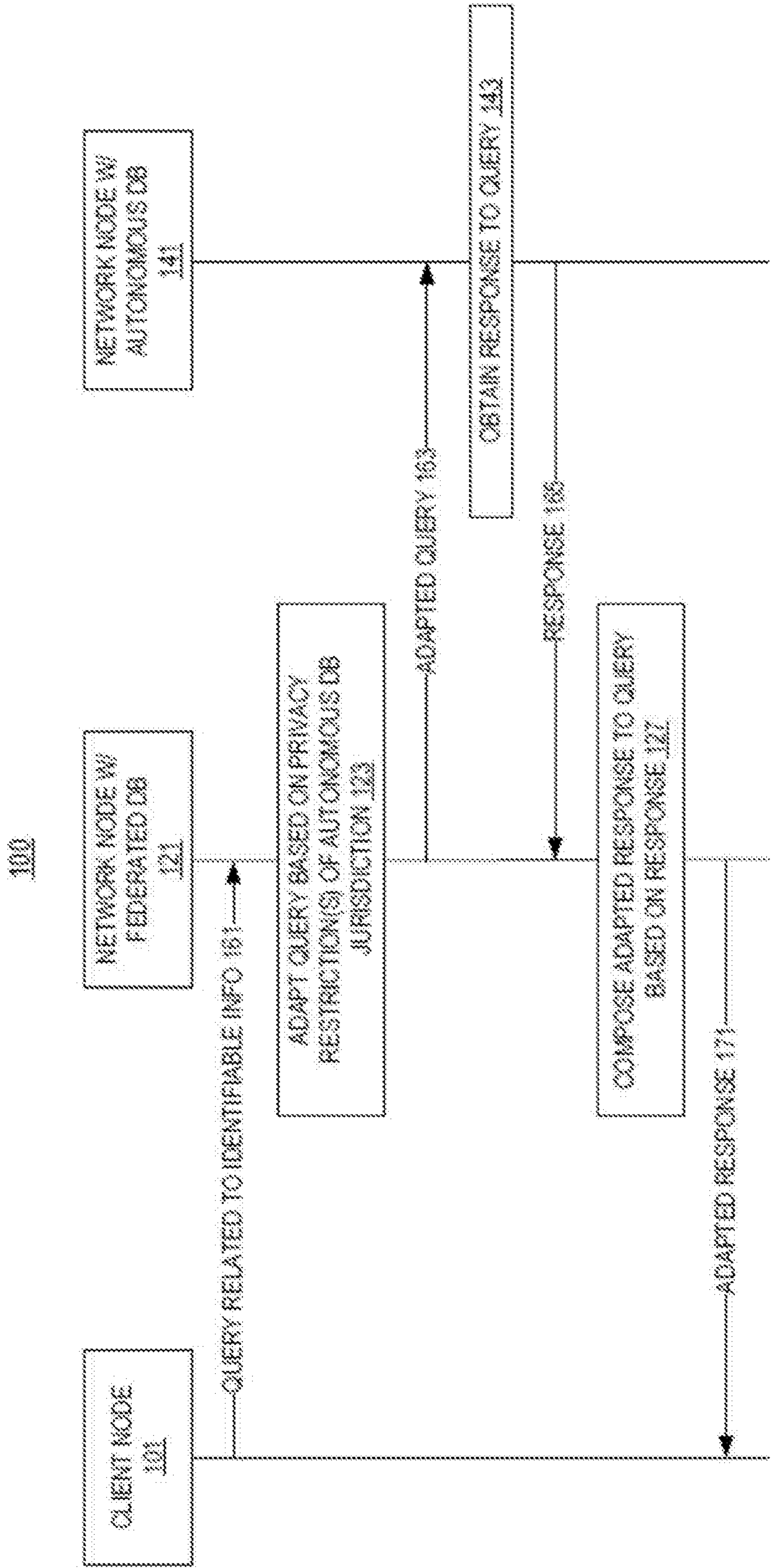


Fig. 181

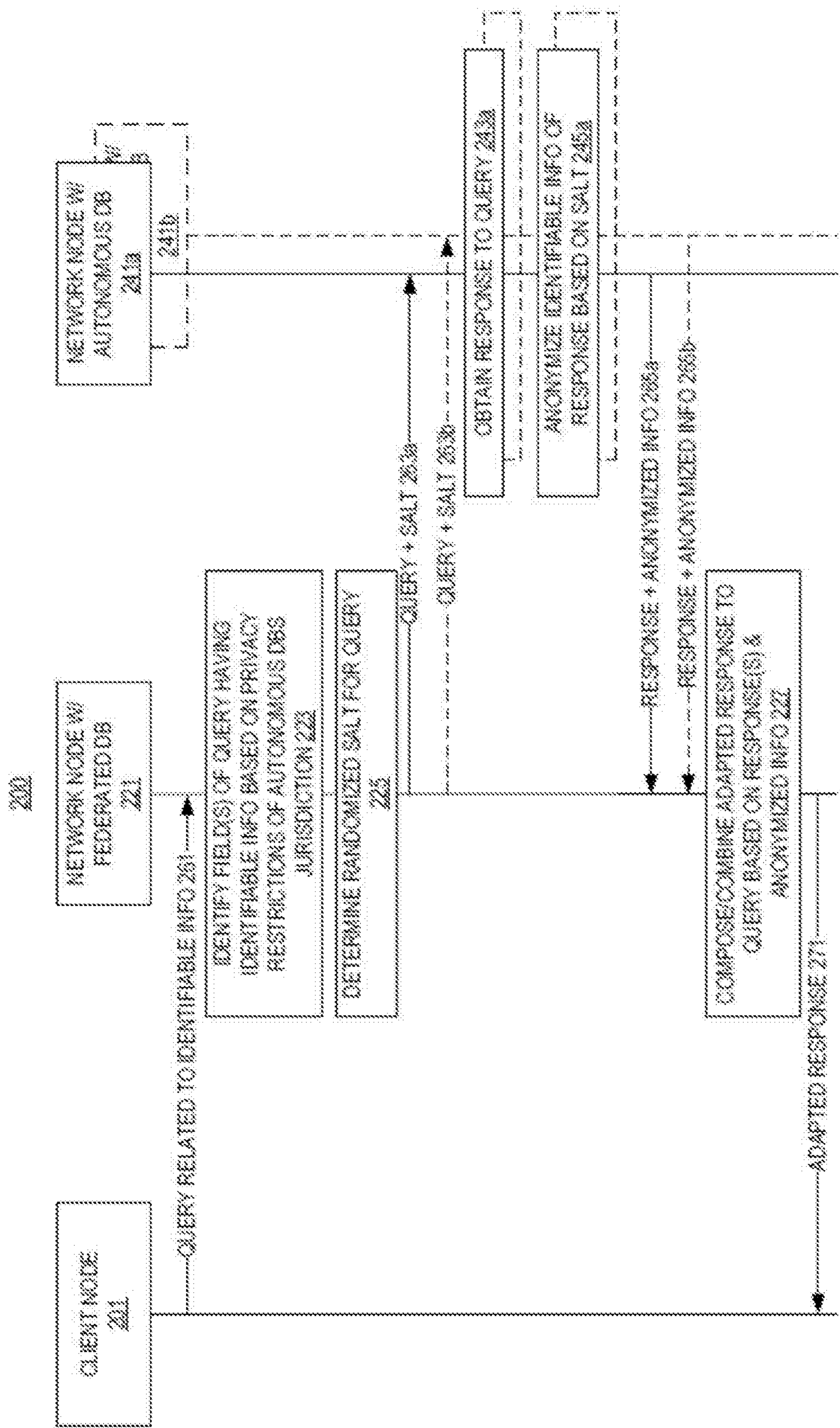


Fig. 182

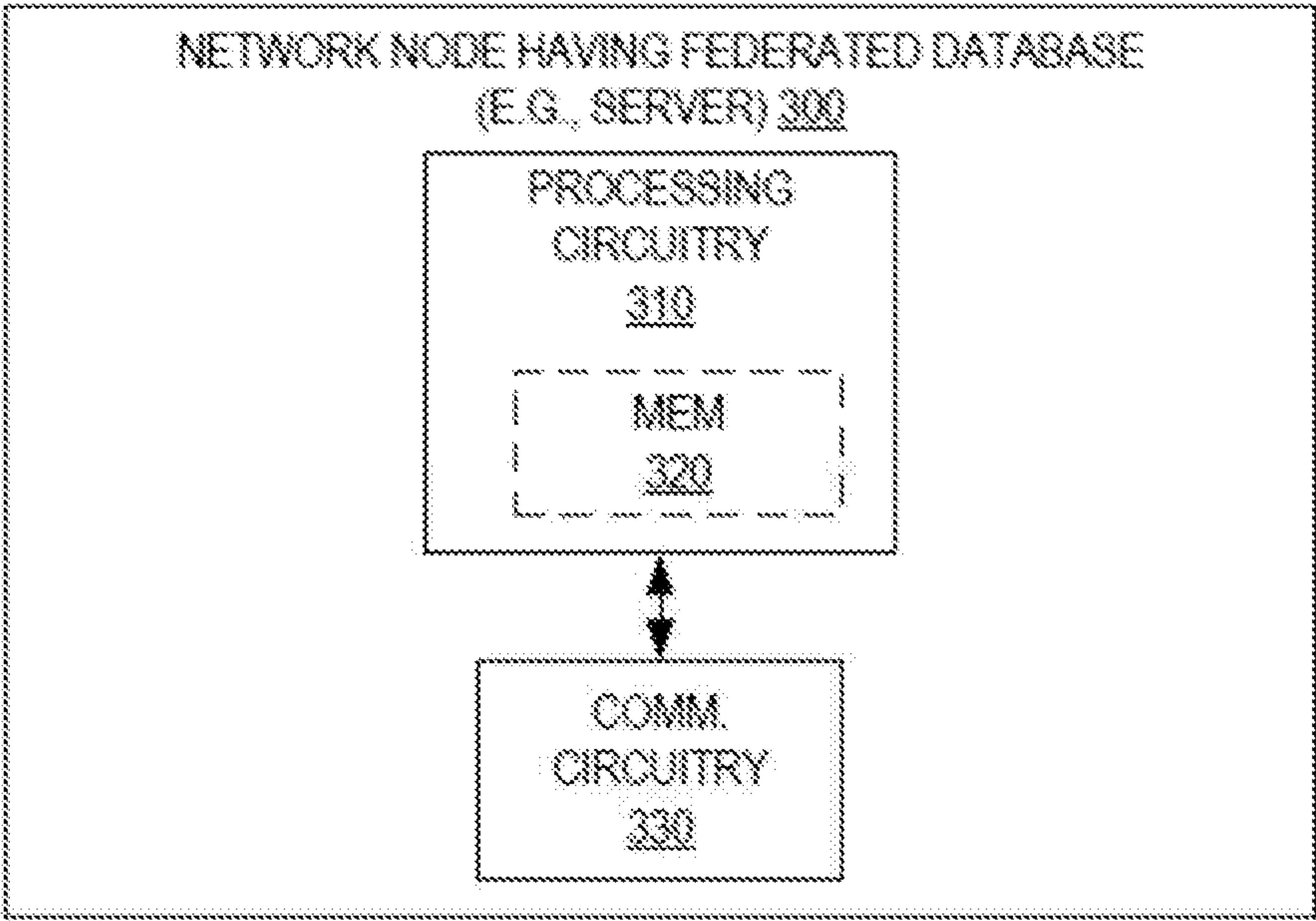


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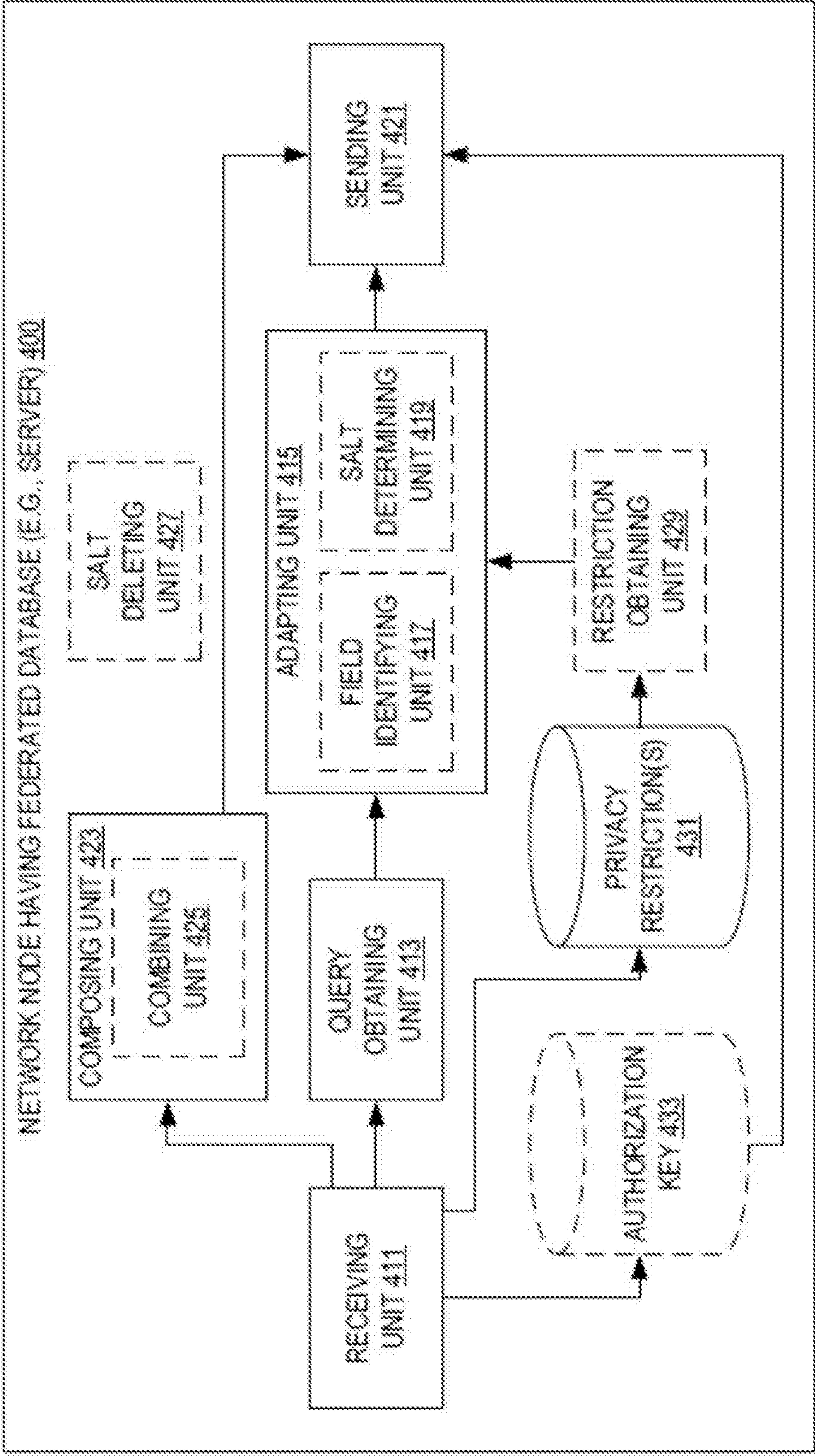
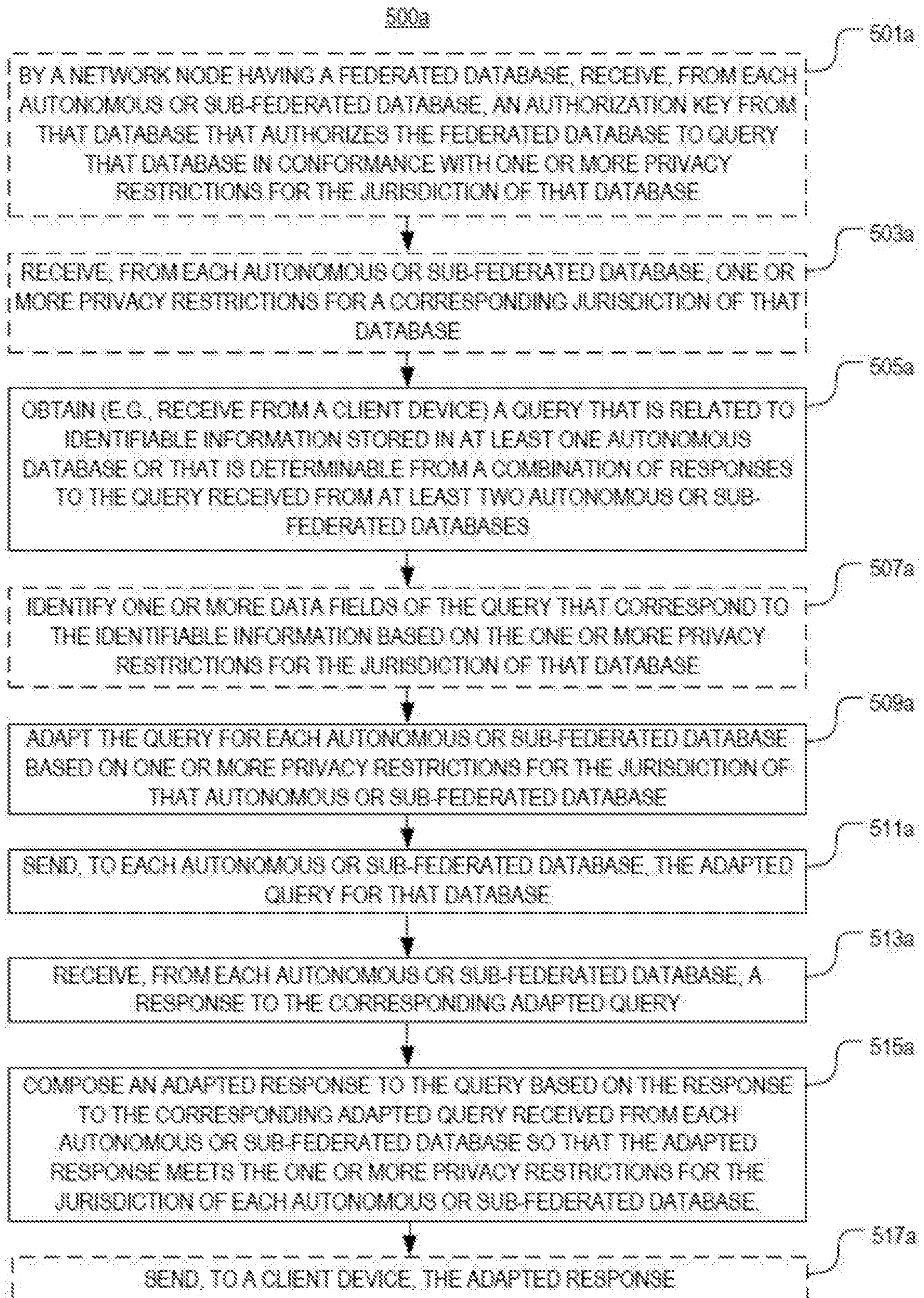
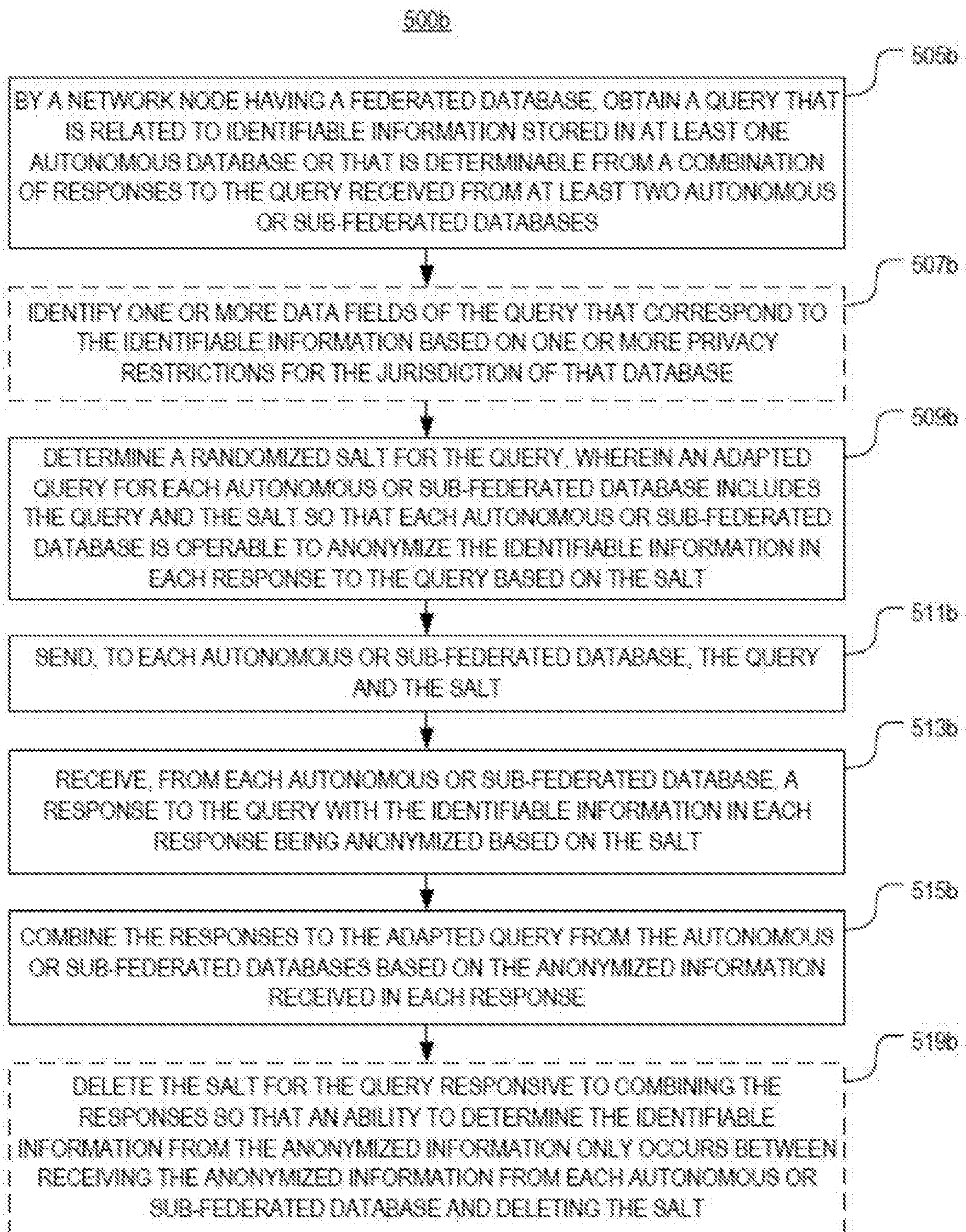


Fig. 184

**Fig. 185**

**Fig. 186**

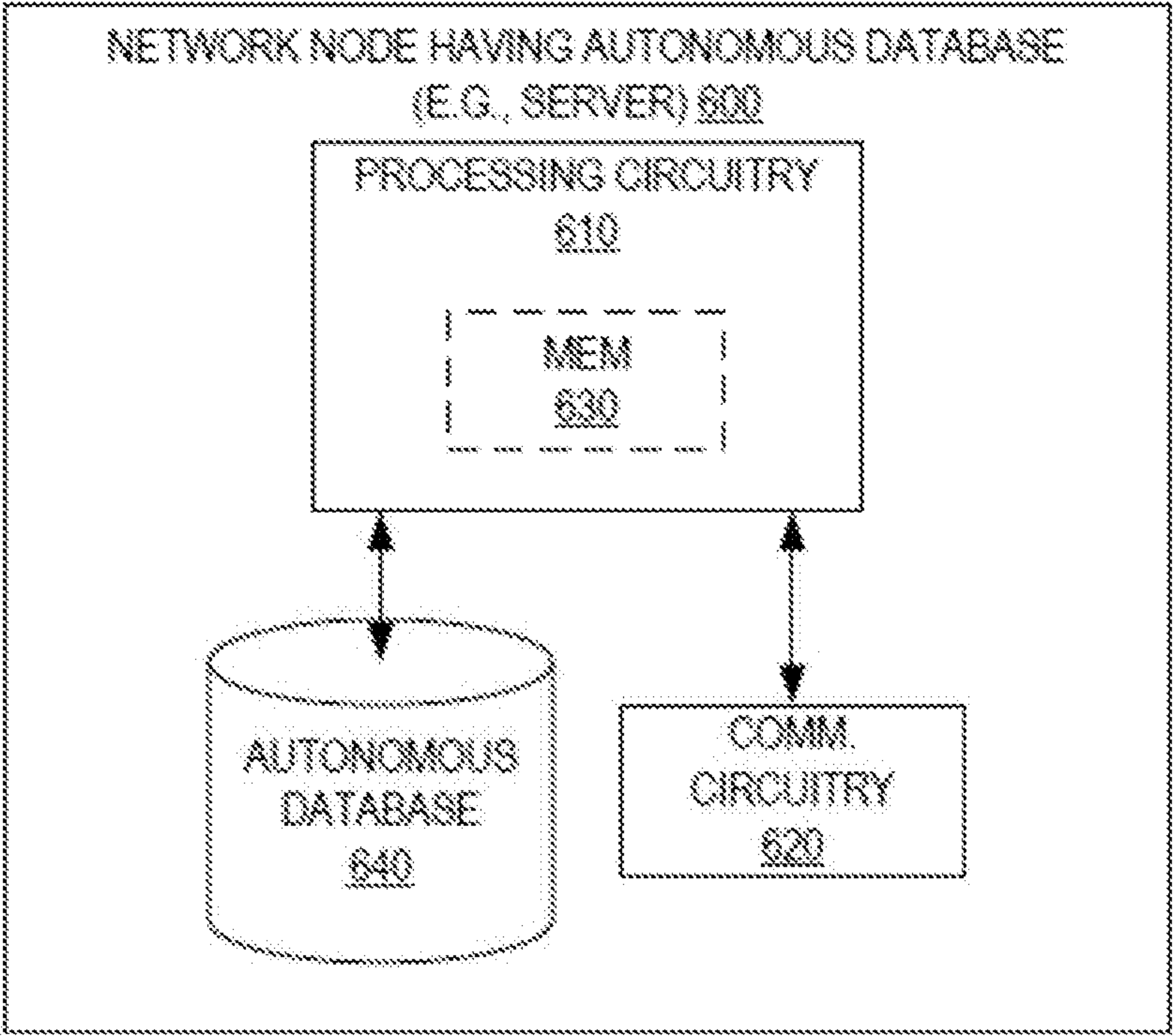


Fig. 187

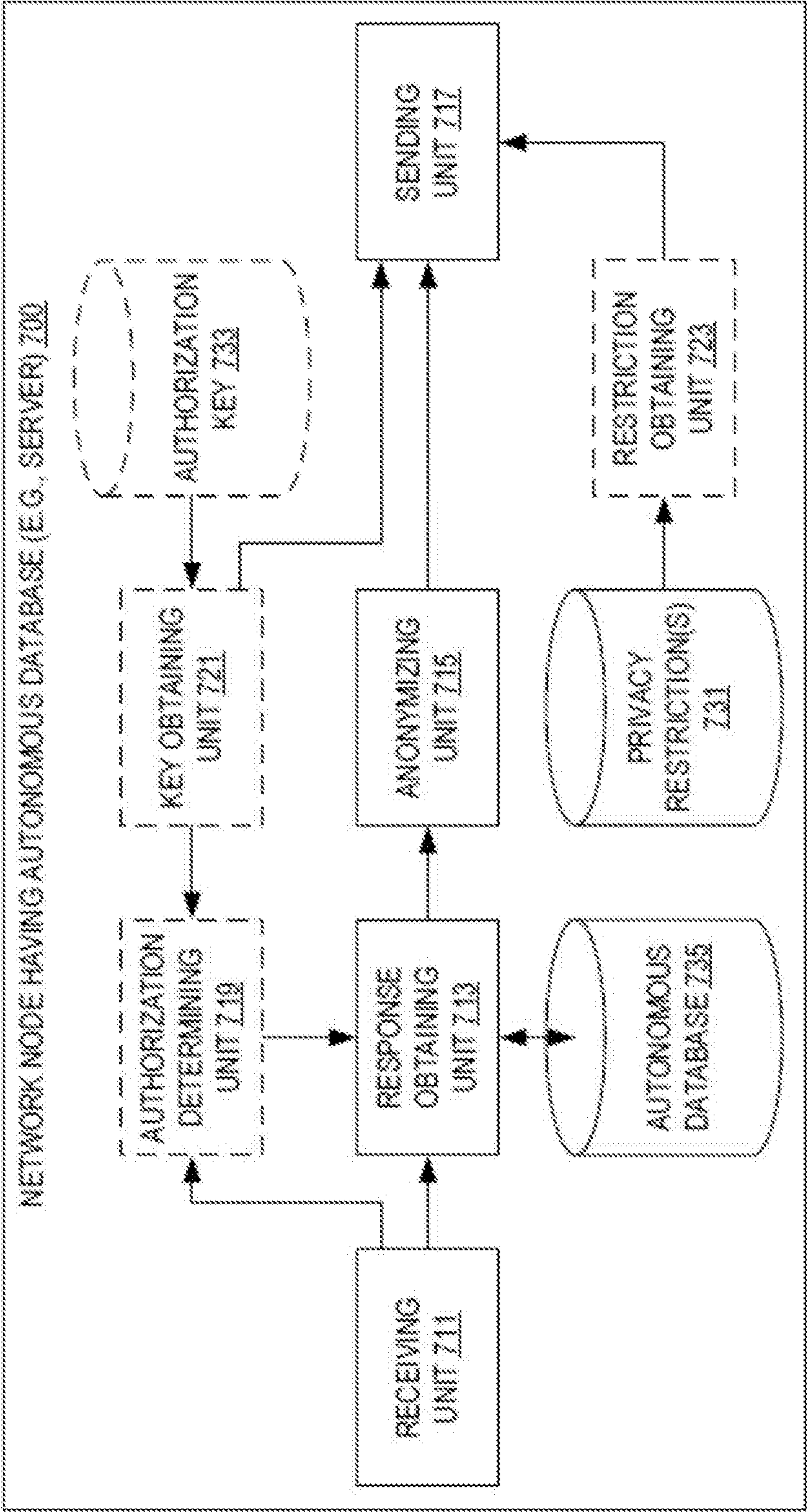
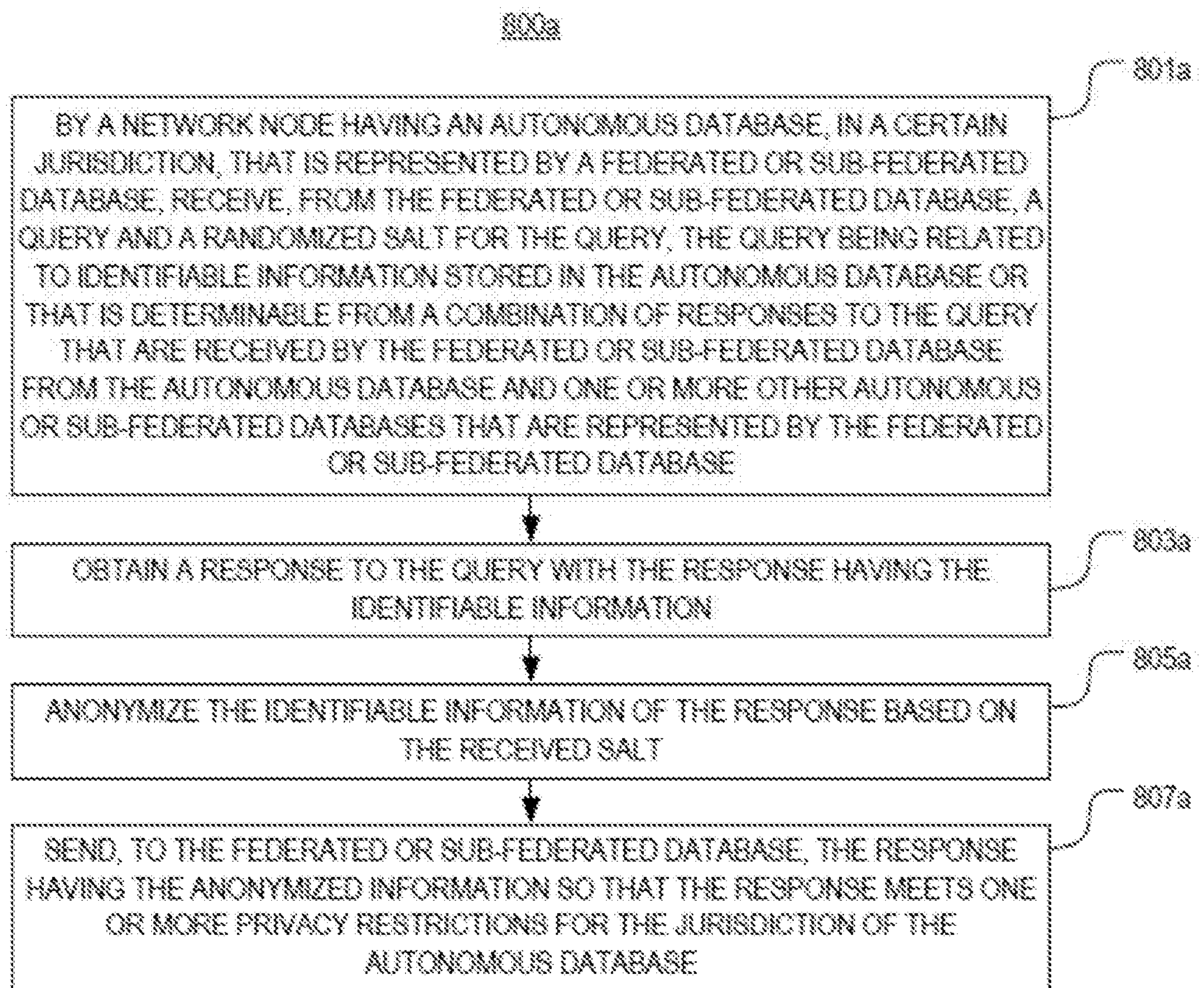
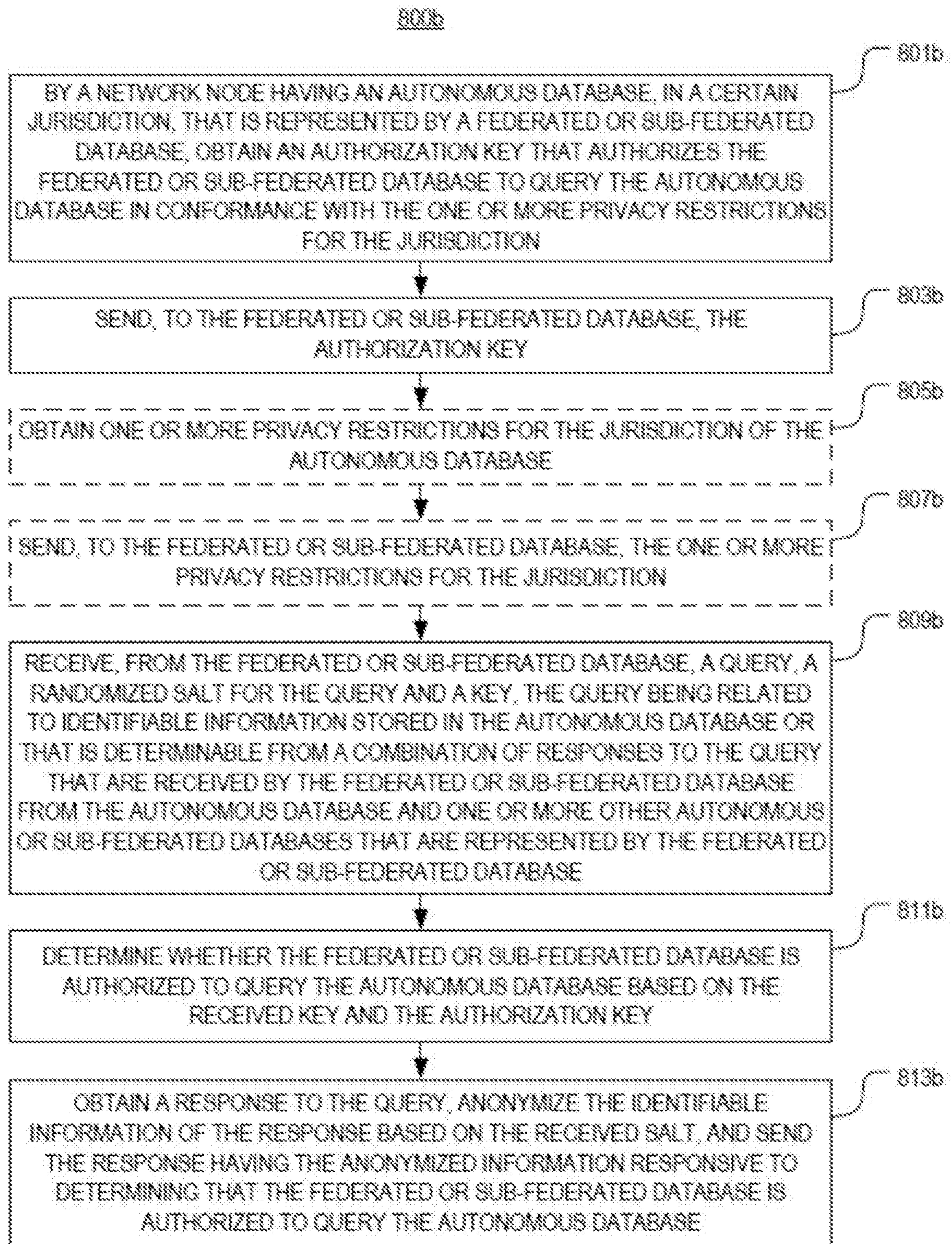


Fig. 188

**Fig. 189**

**Fig. 190**

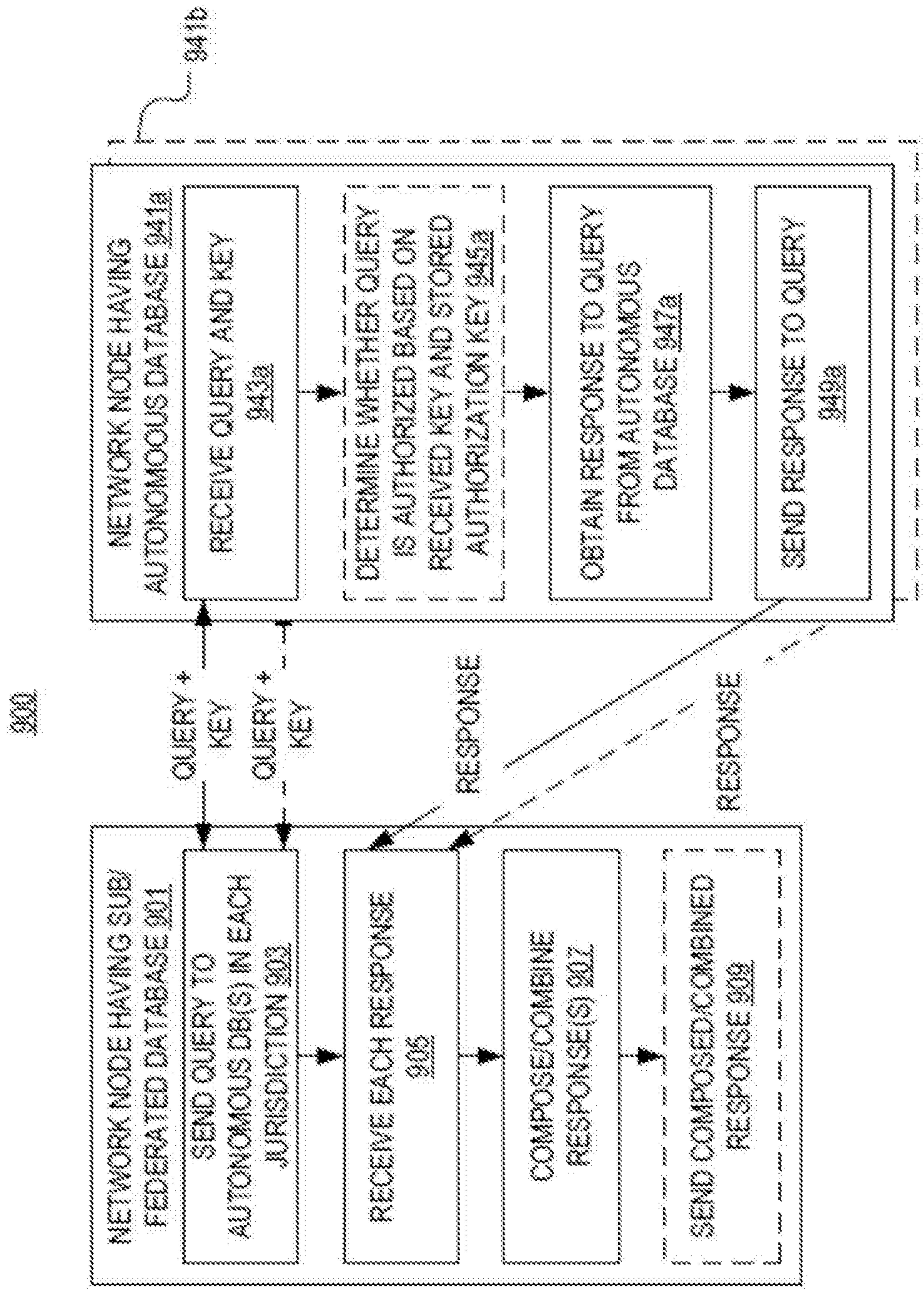


Fig. 191

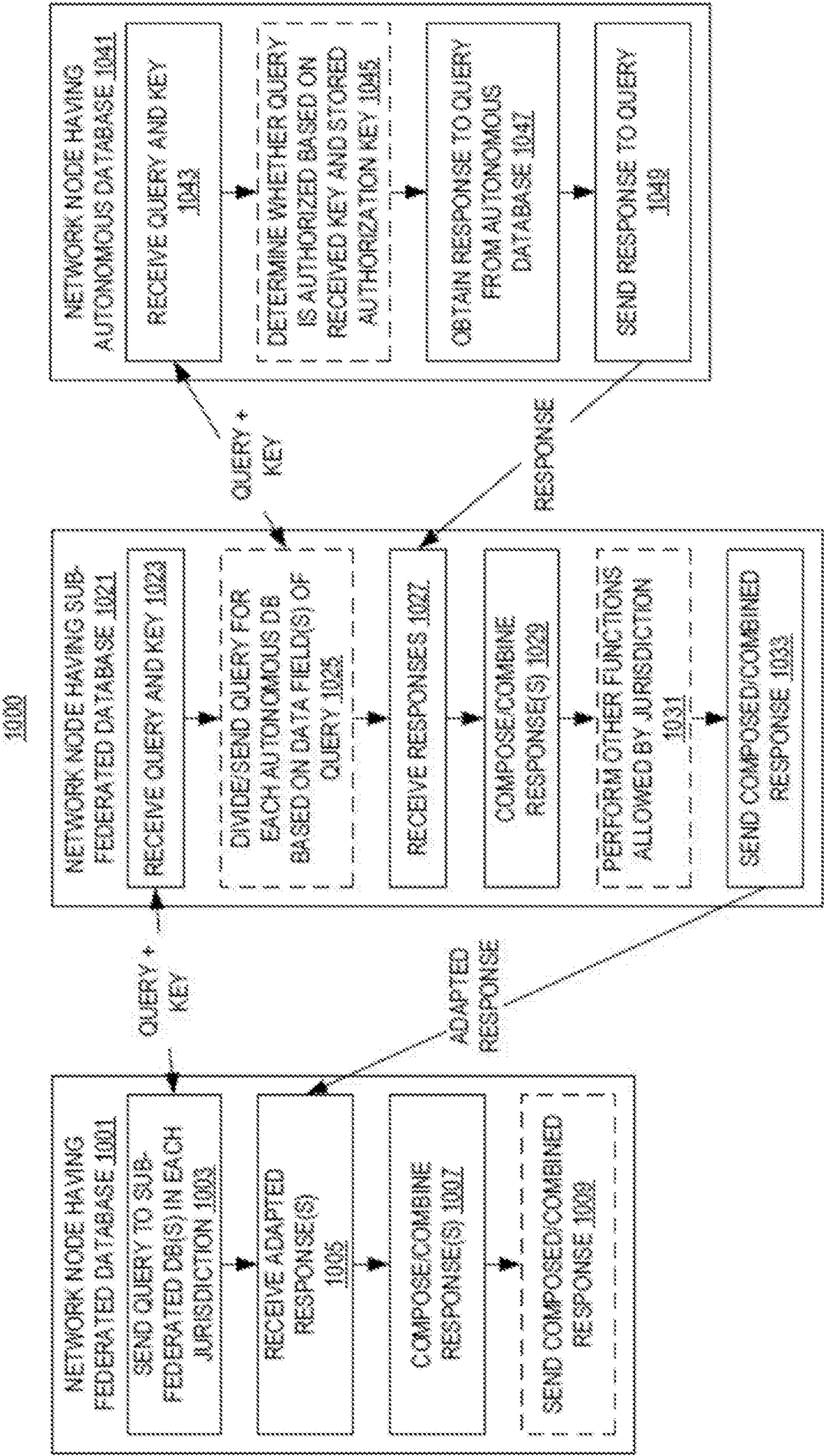


Fig. 192

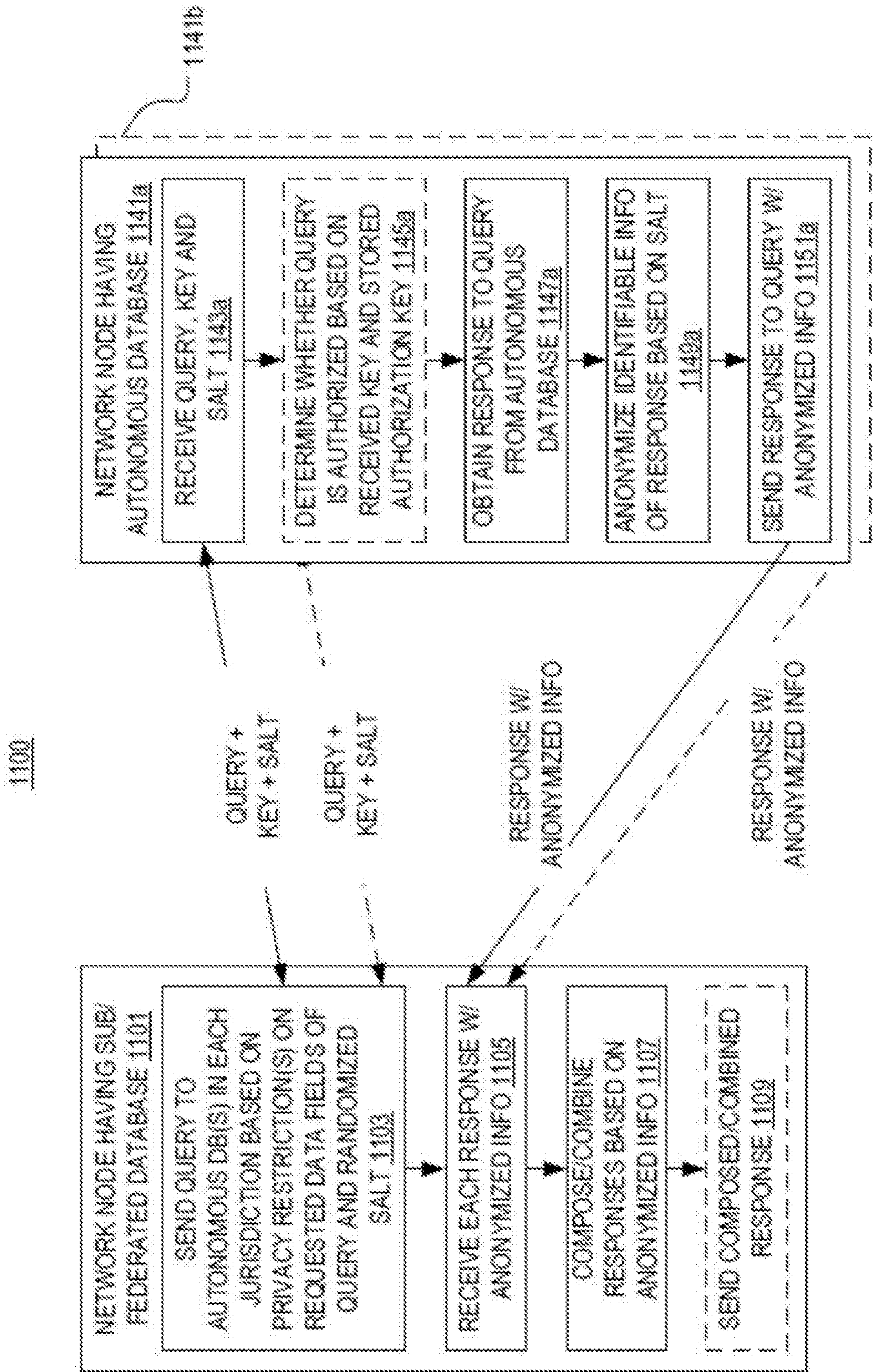


Fig. 193

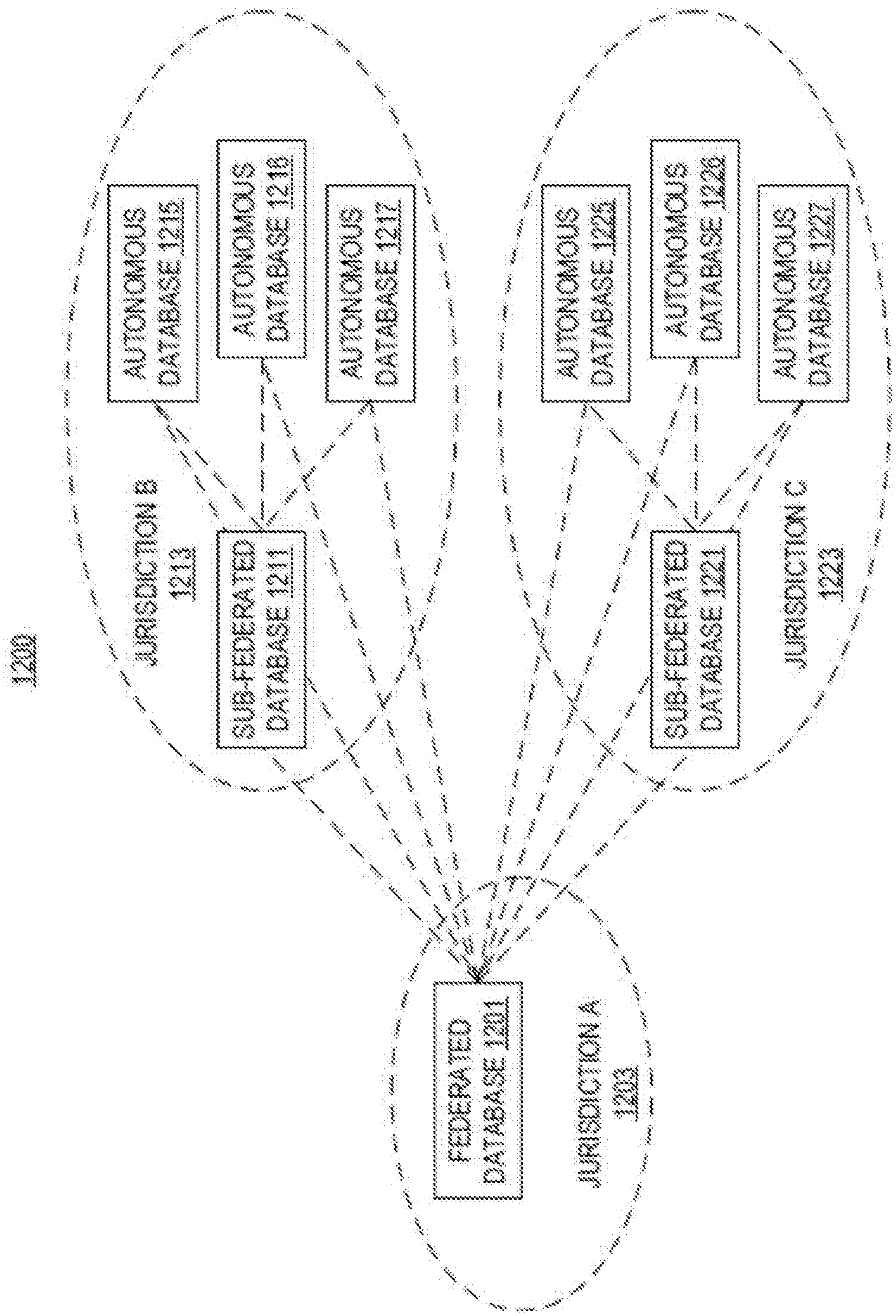


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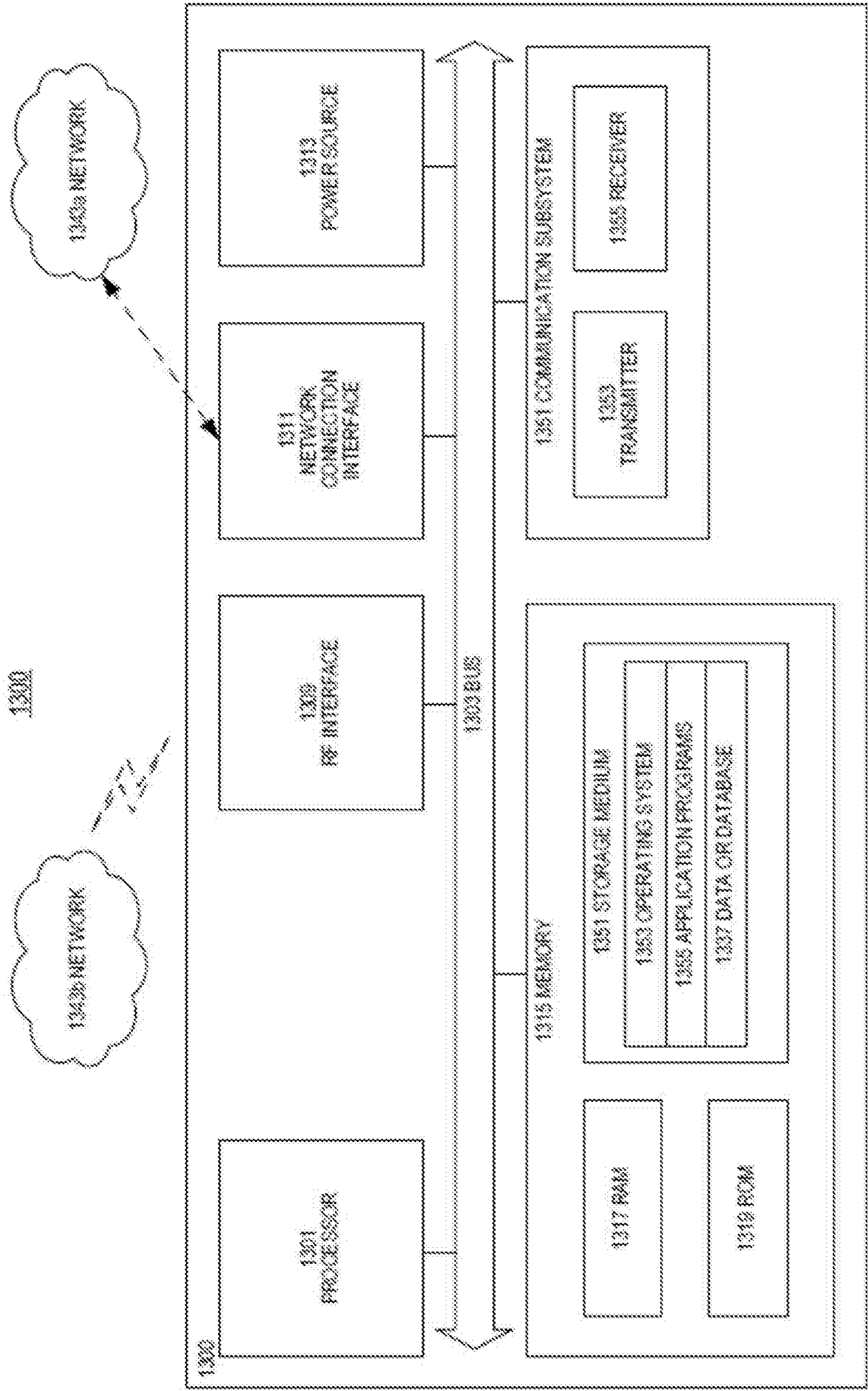


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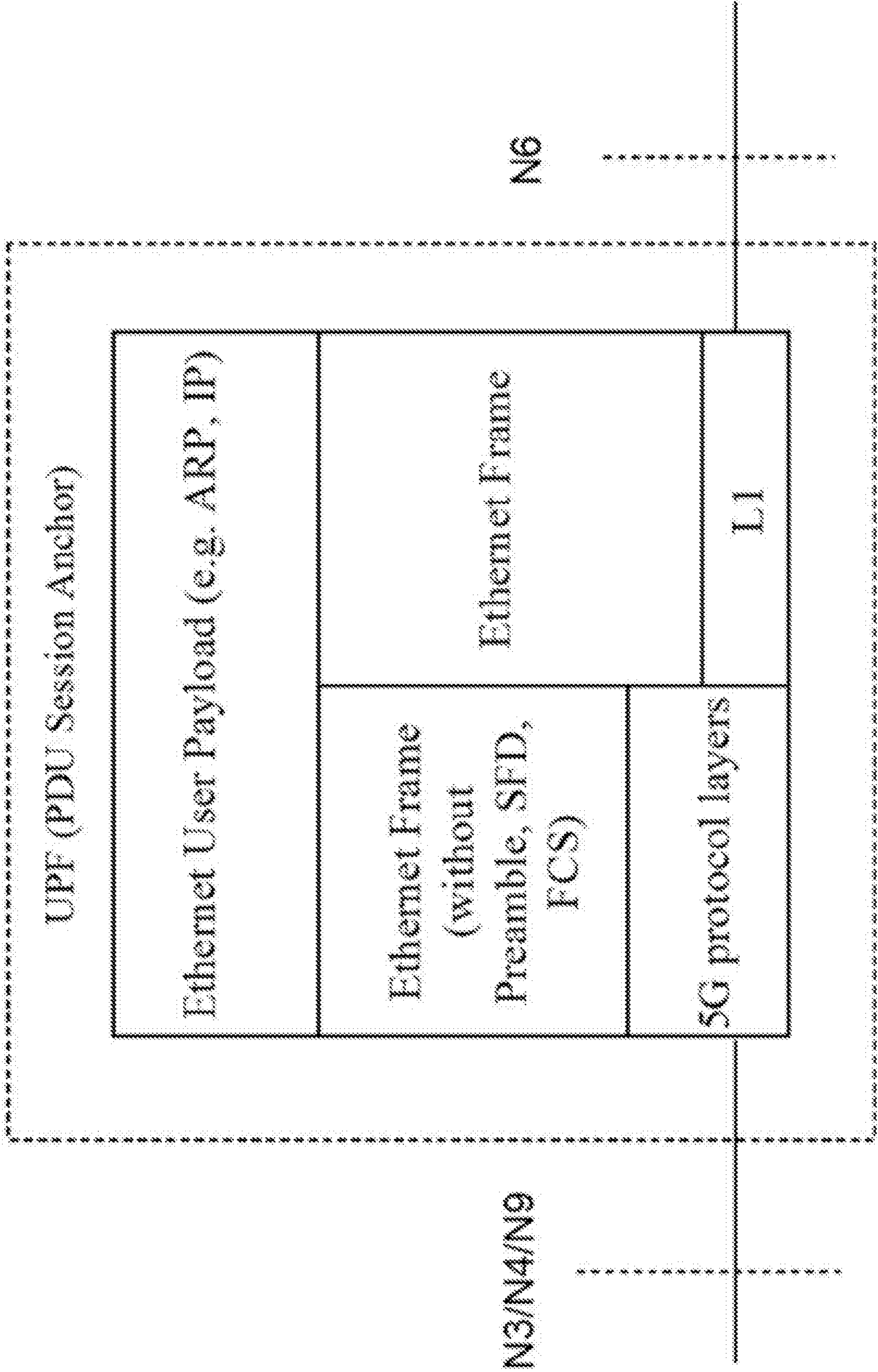


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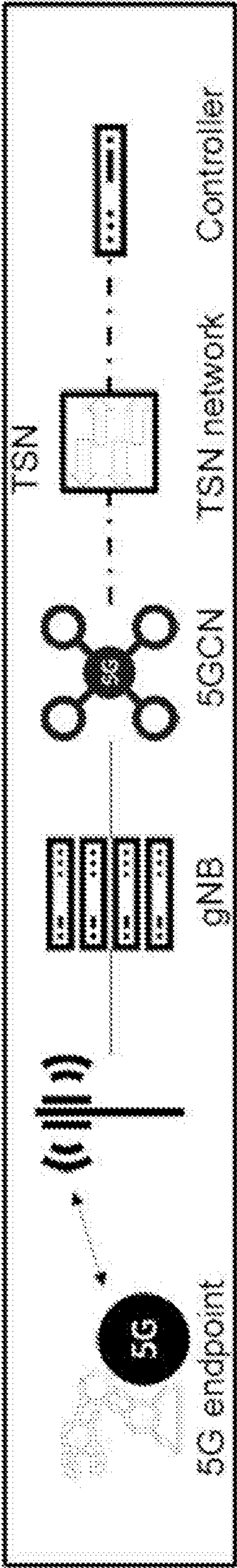


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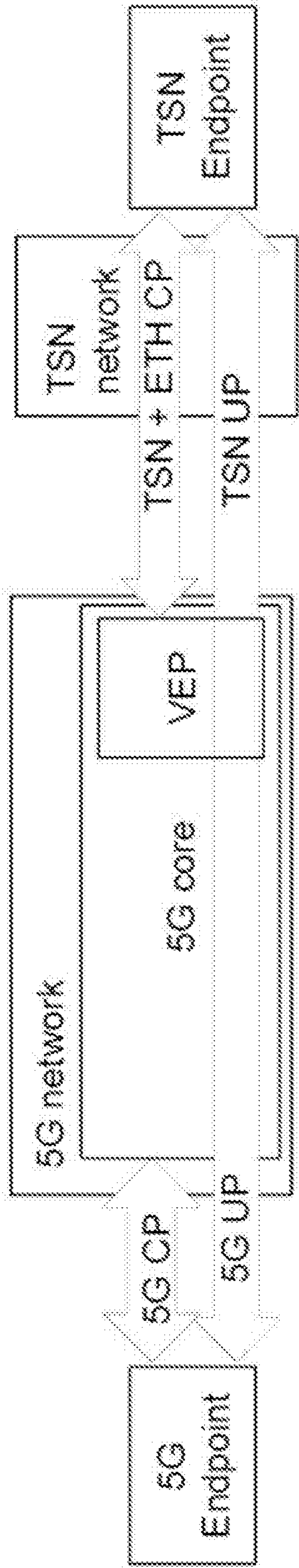


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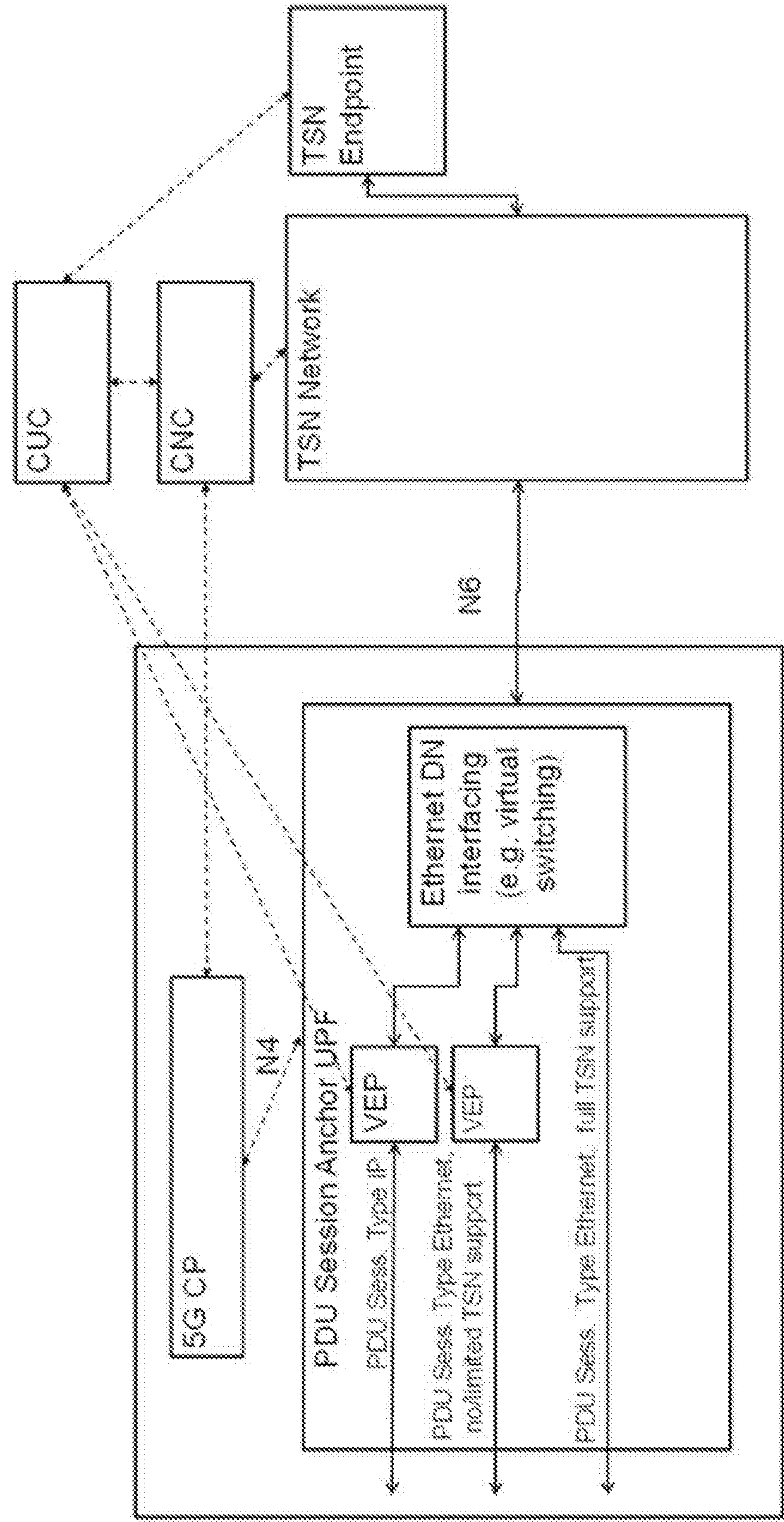


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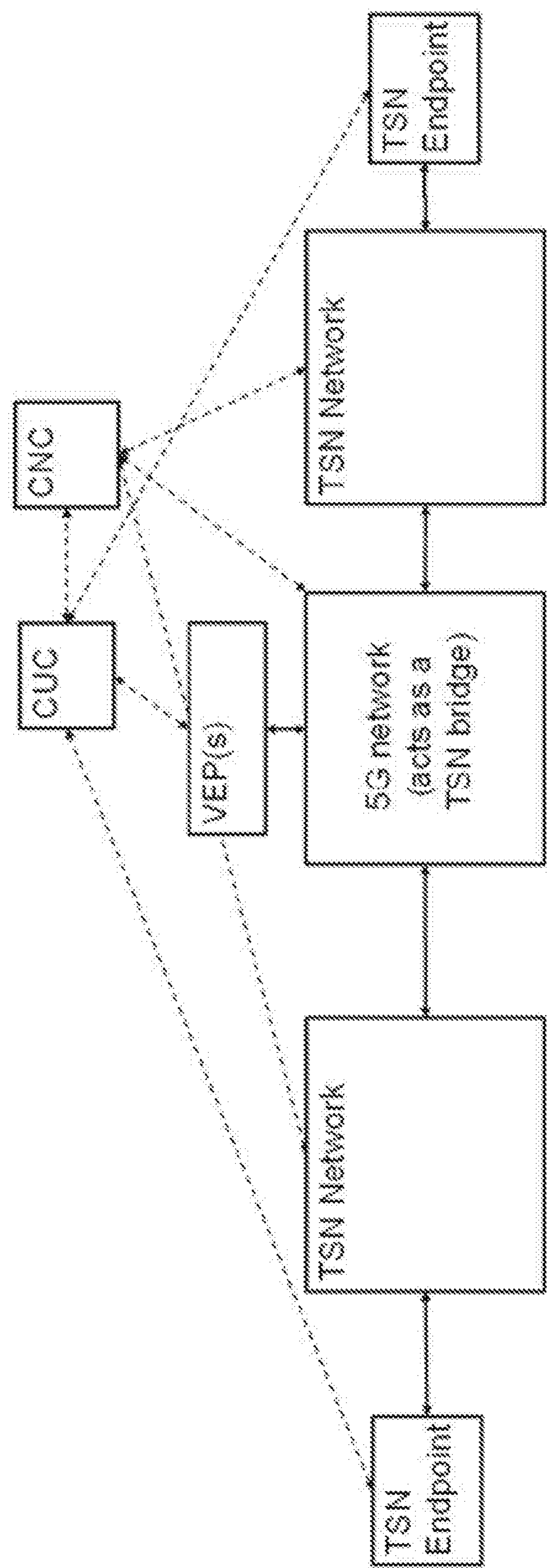


Fig. 200

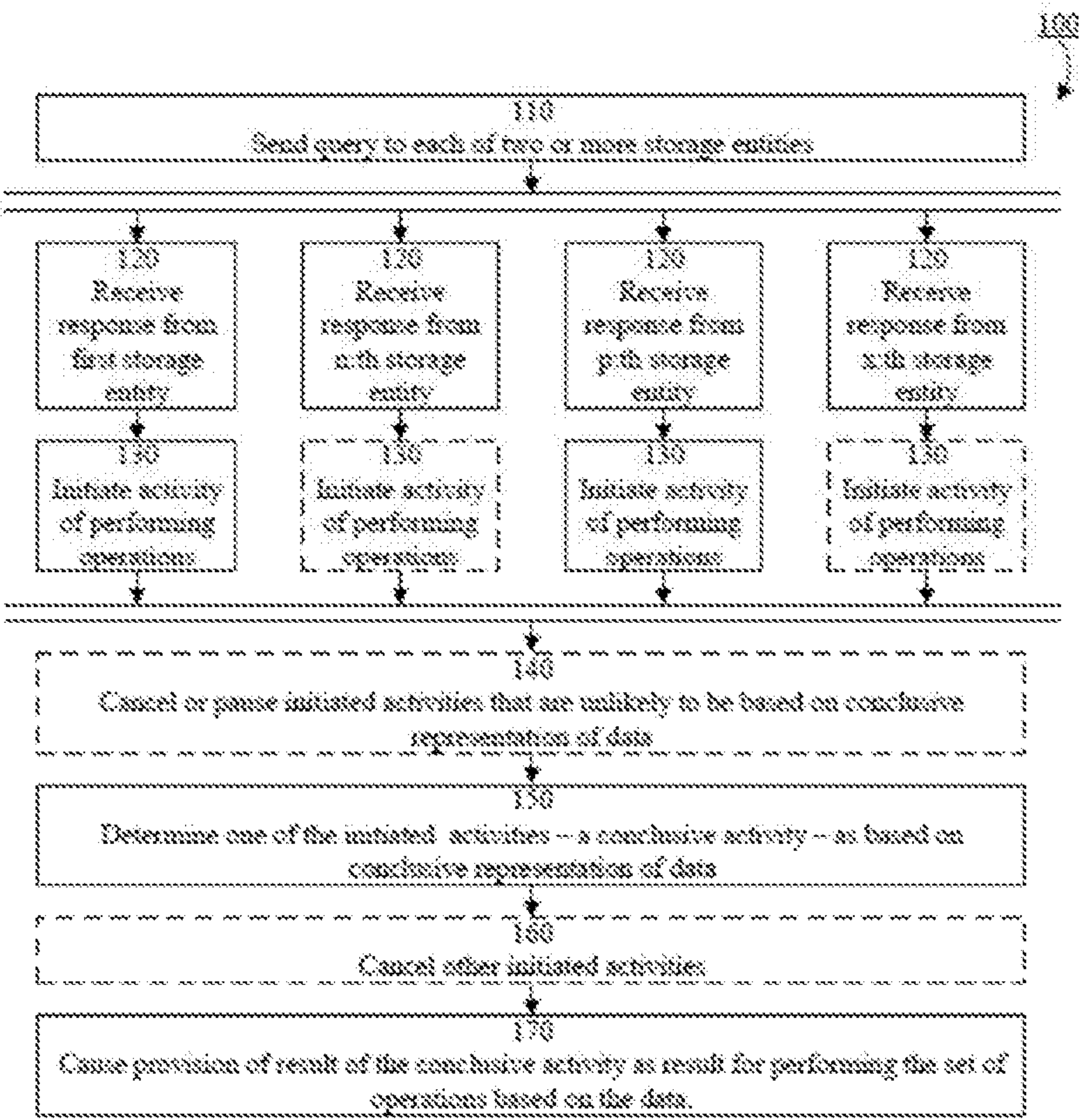


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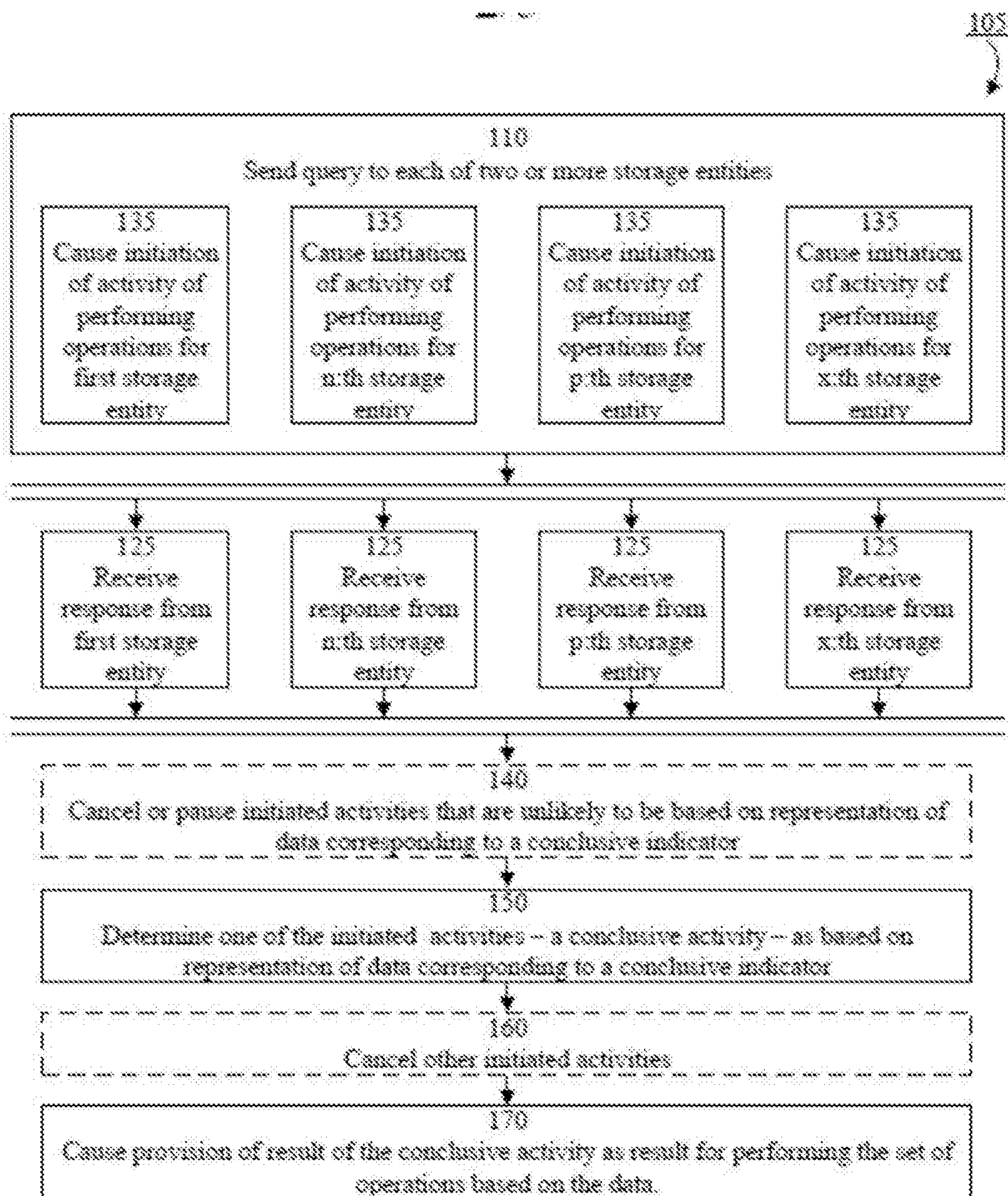


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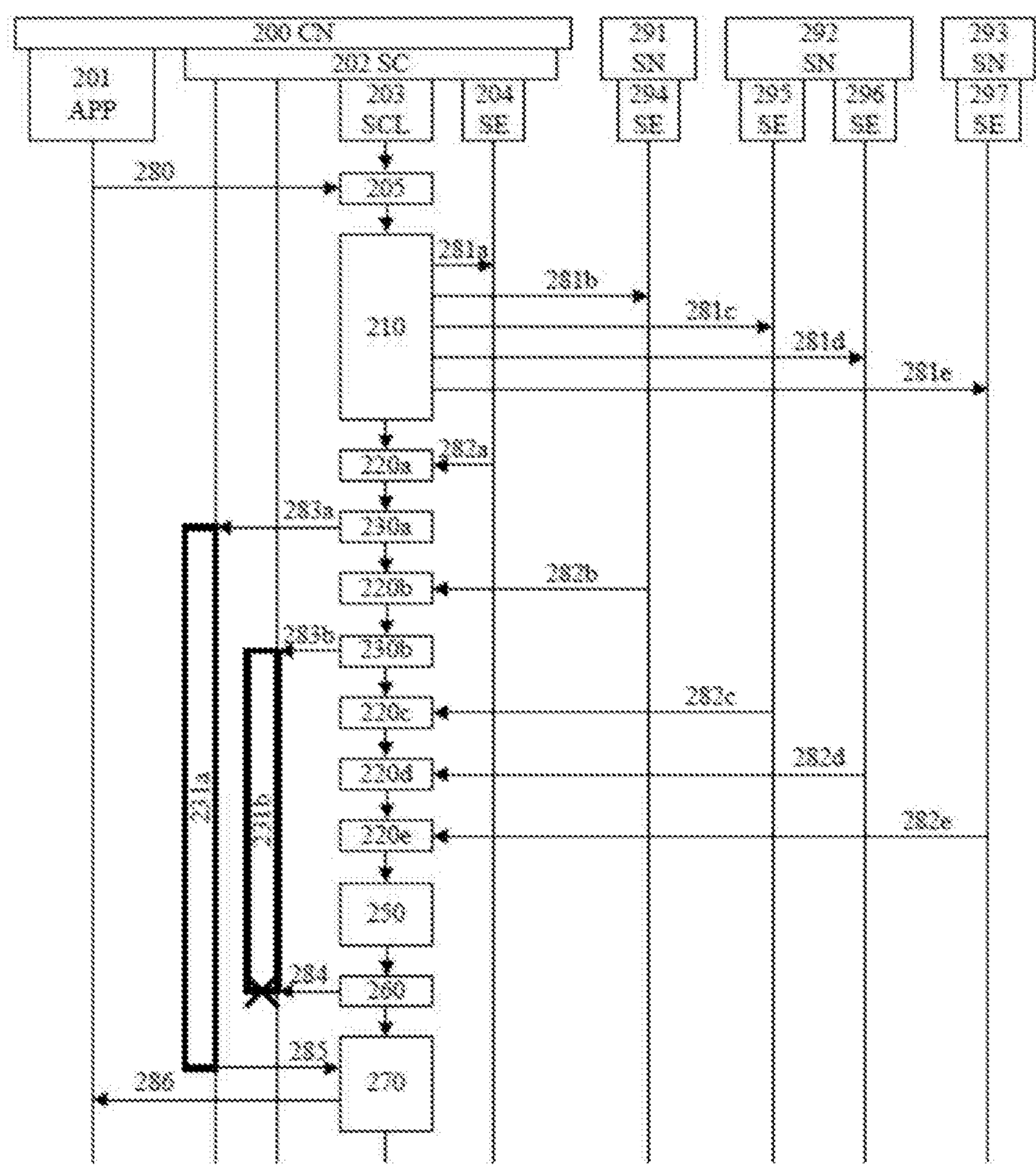


Fig. 203

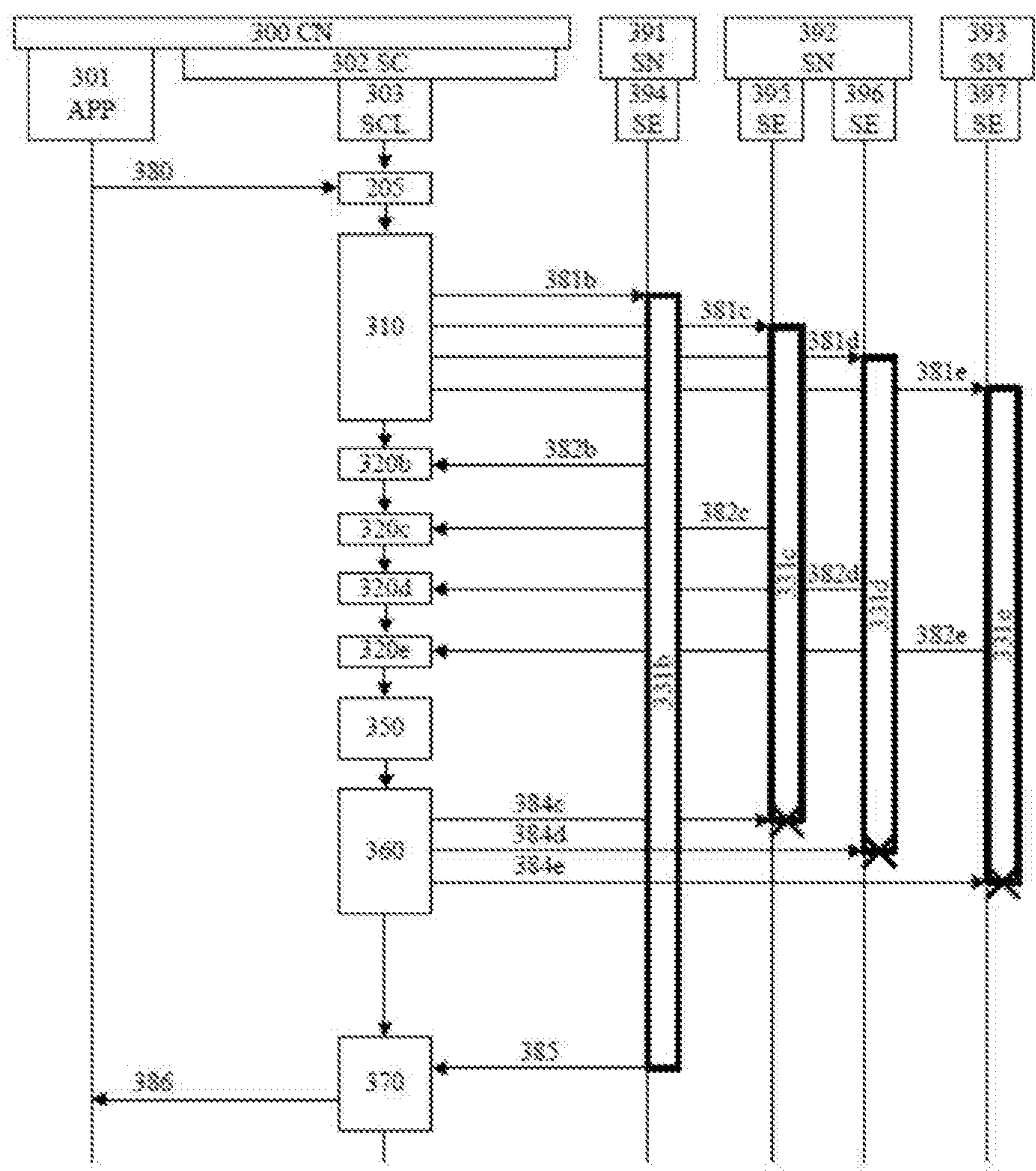


Fig. 204

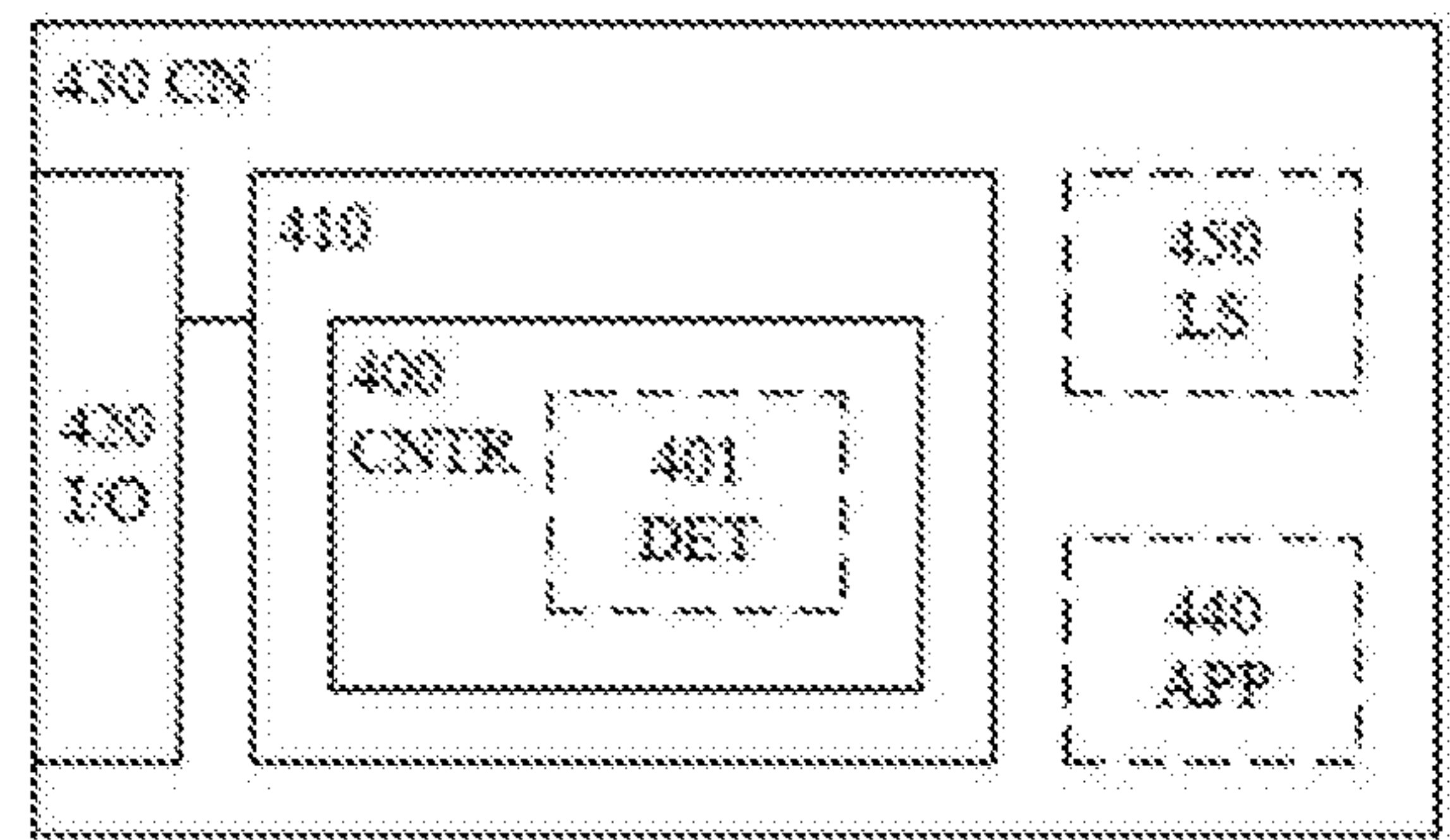


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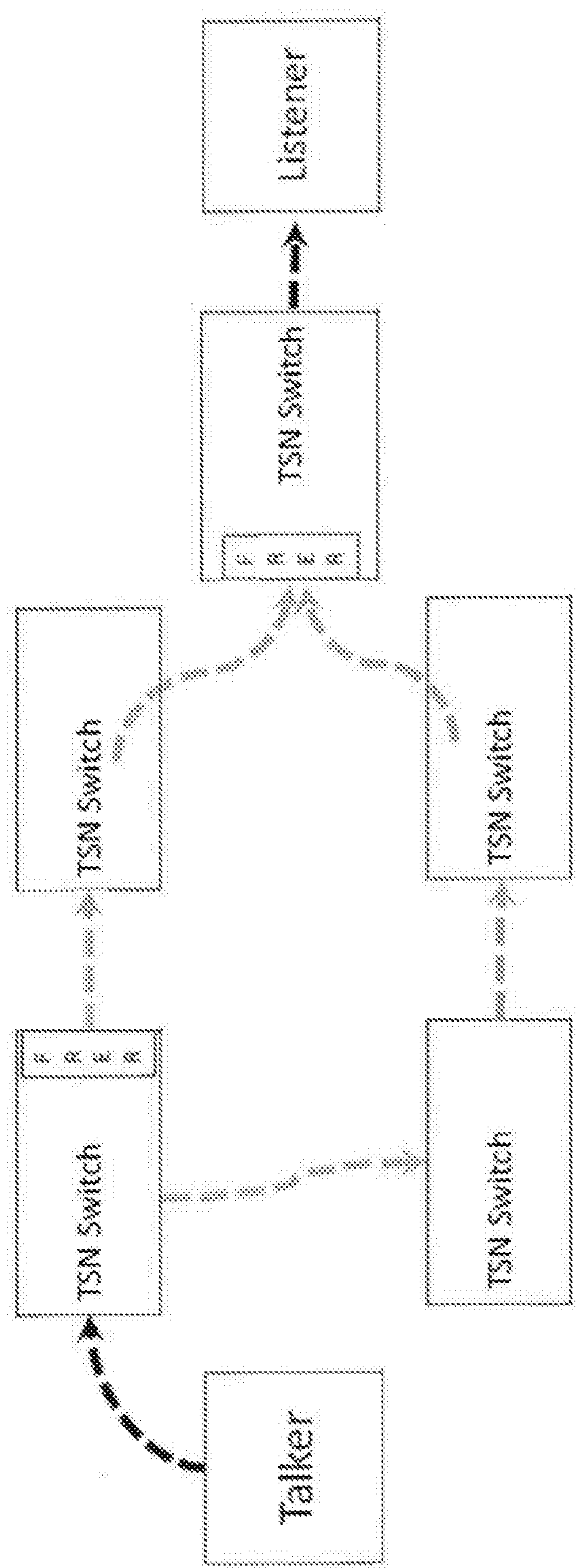


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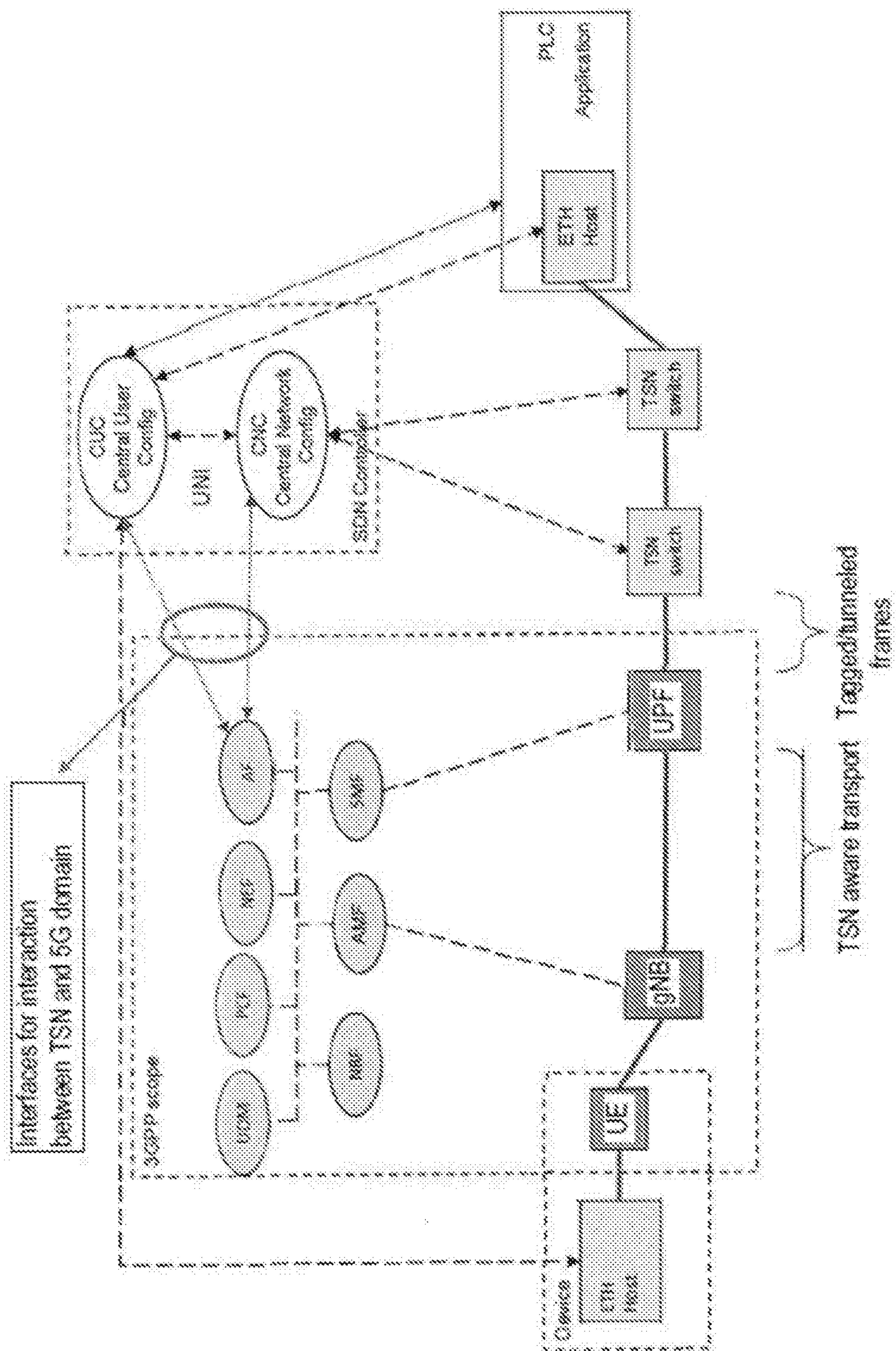


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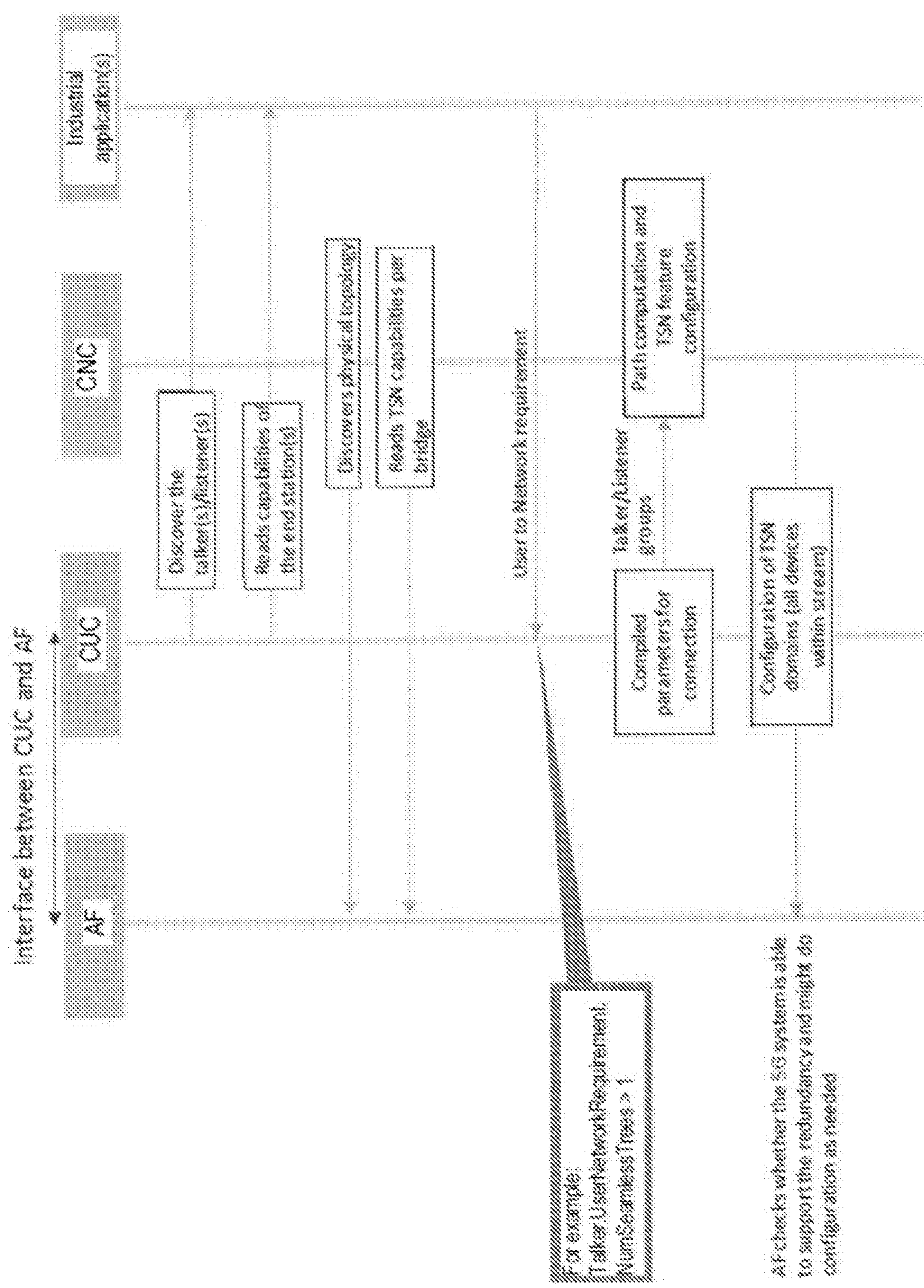


Fig. 208

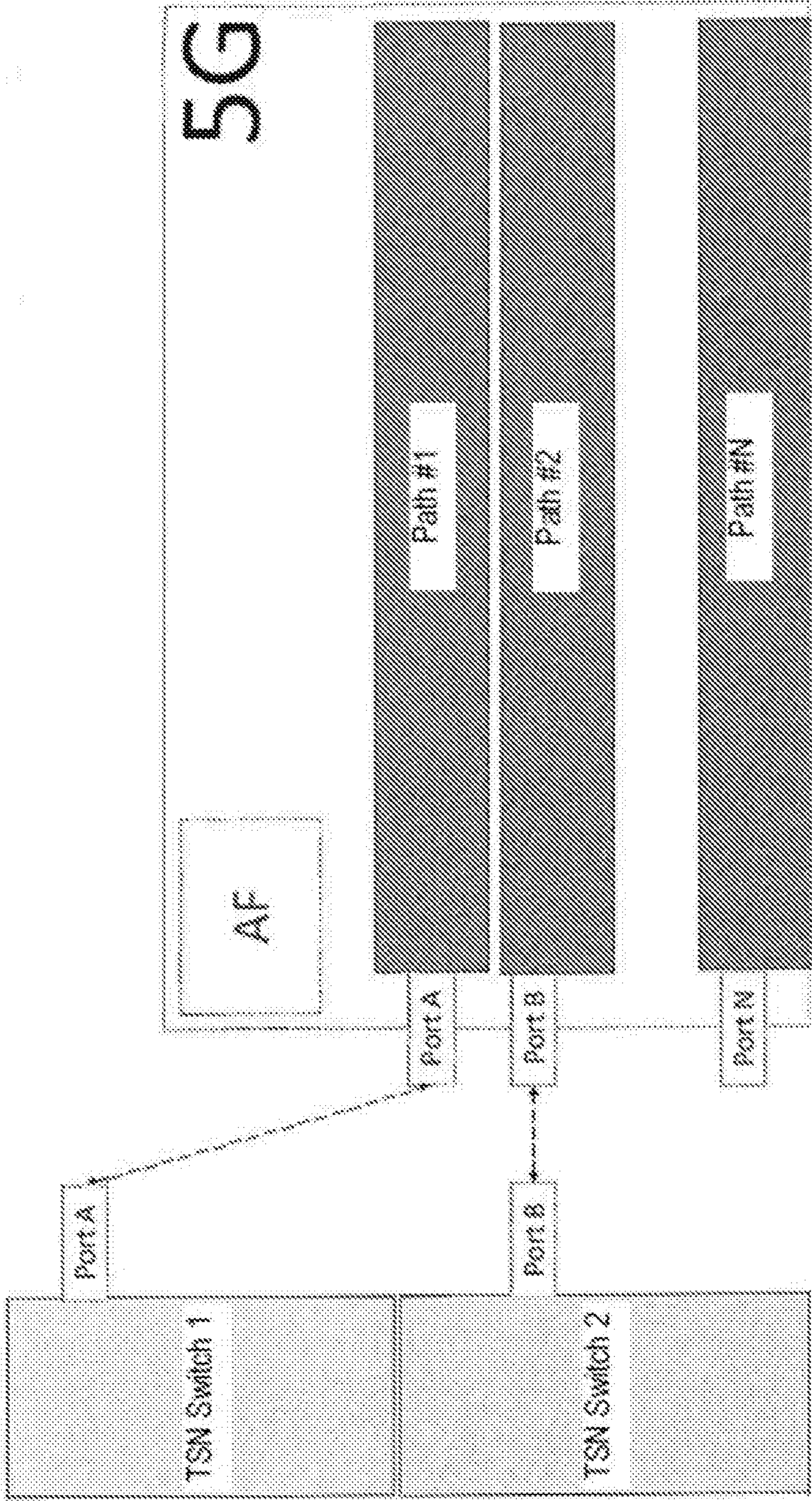


Fig. 209

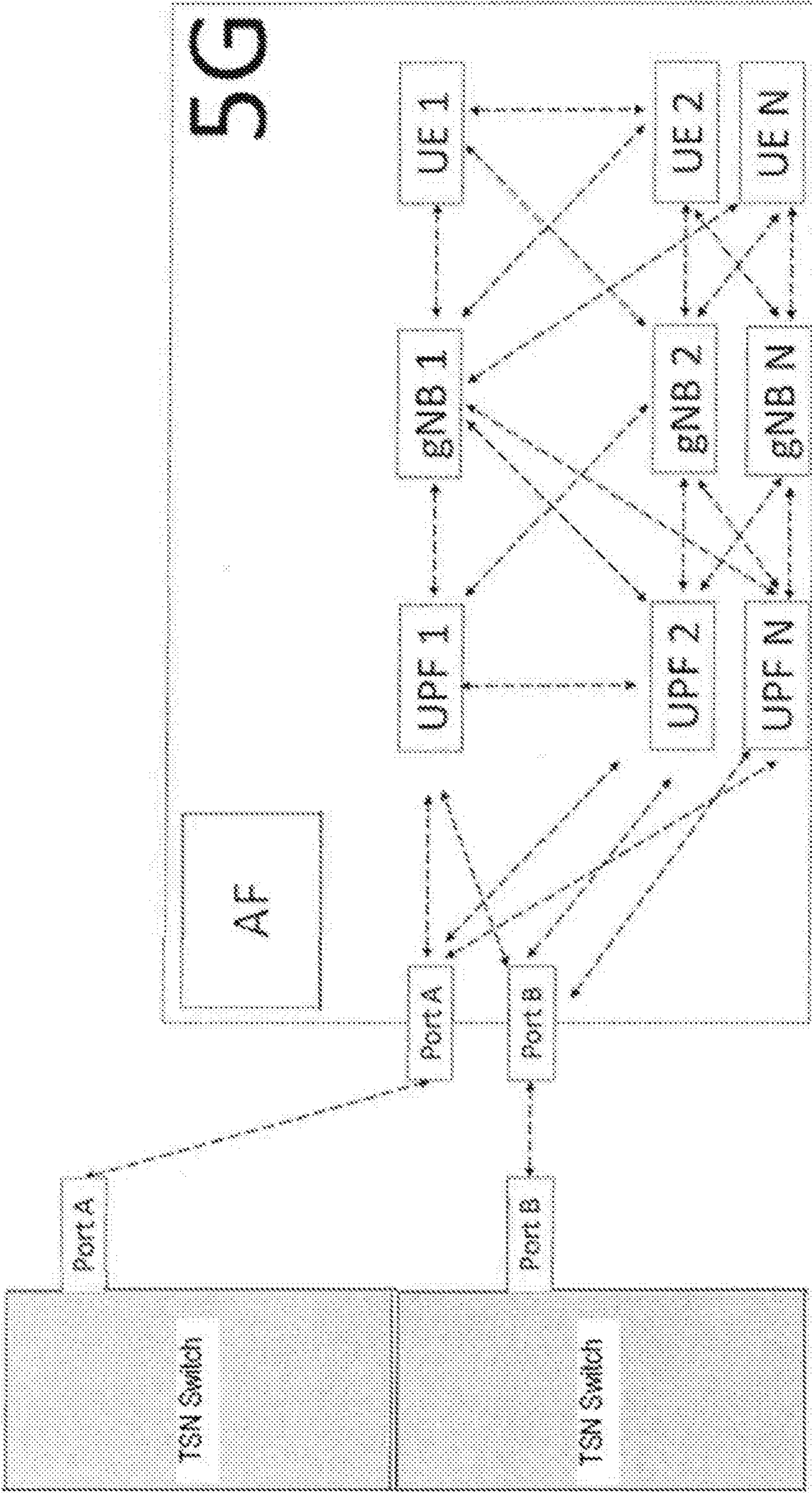


Fig. 210

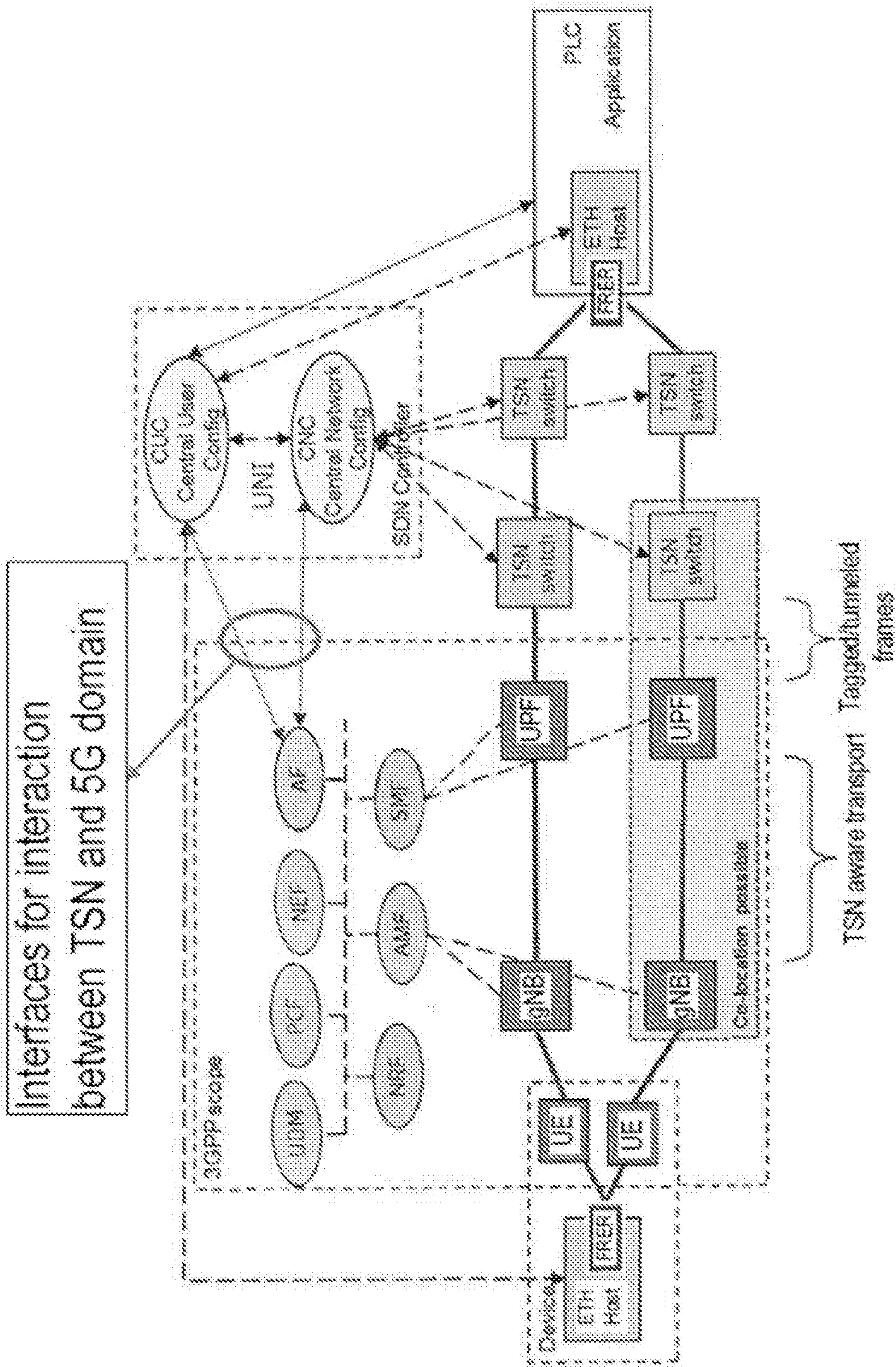
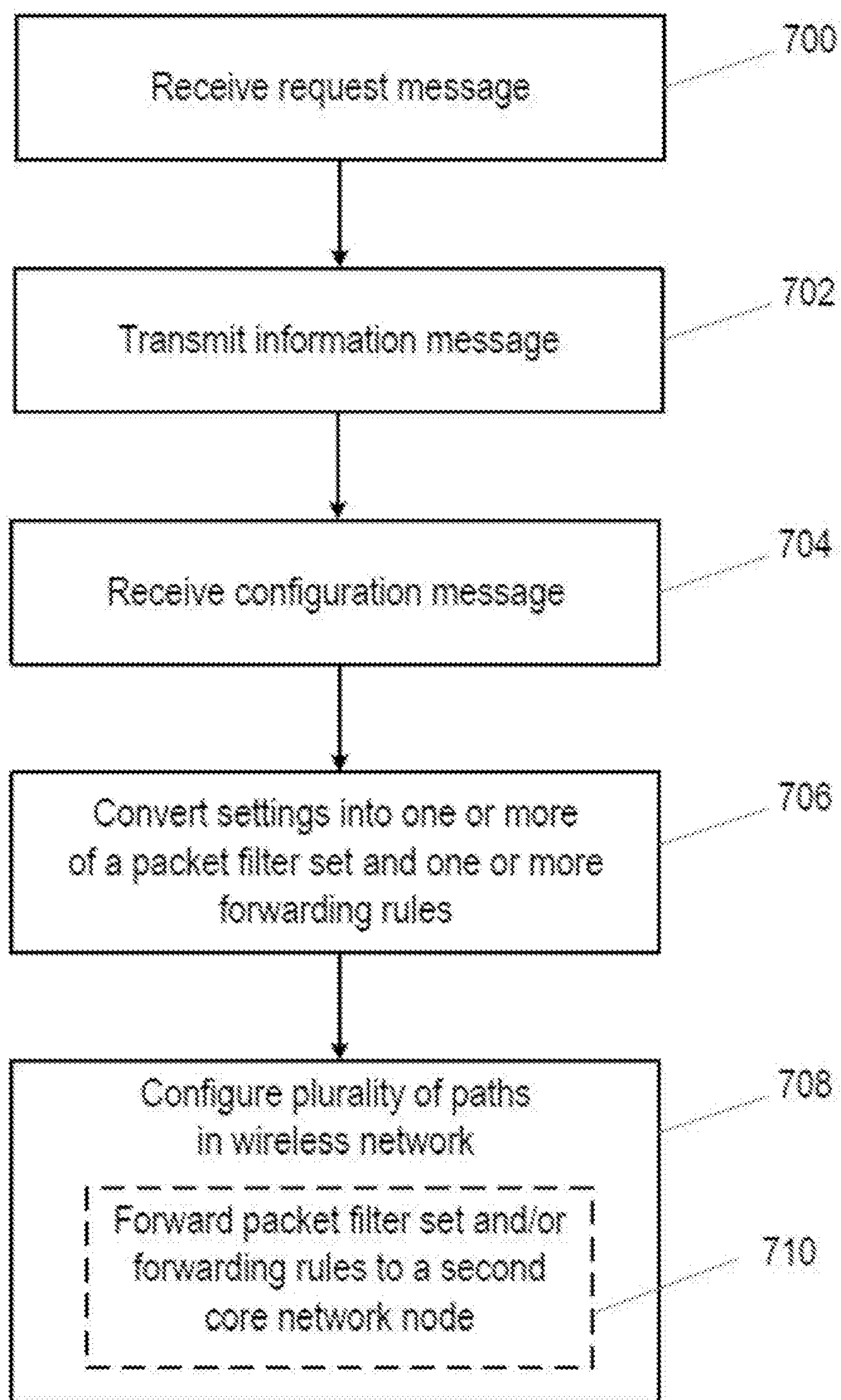
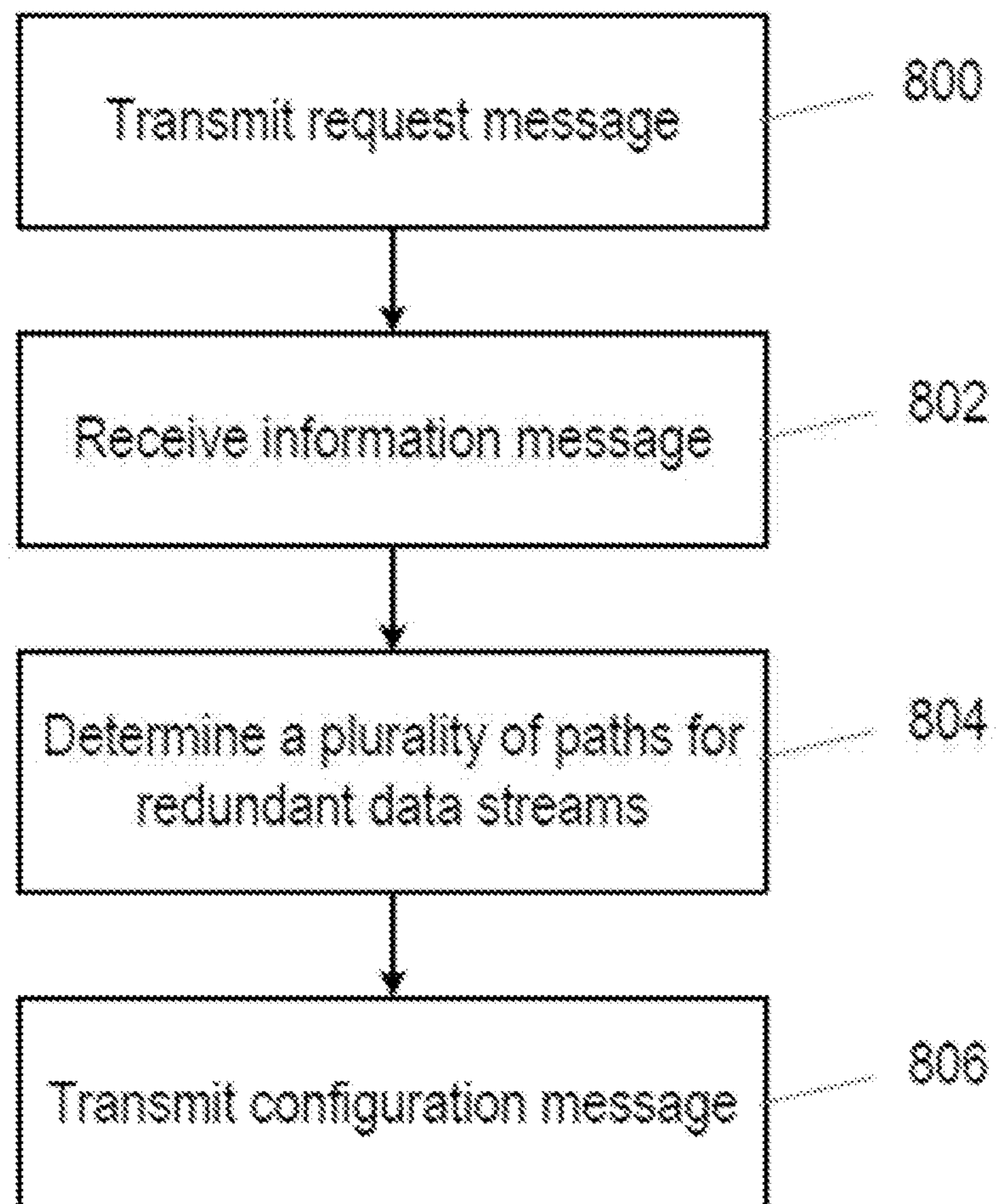


Fig. 211

**Fig. 212**

**Fig. 213**

PTP Message Header Format										Offset	Count
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reserved										1	1
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Fig. 214

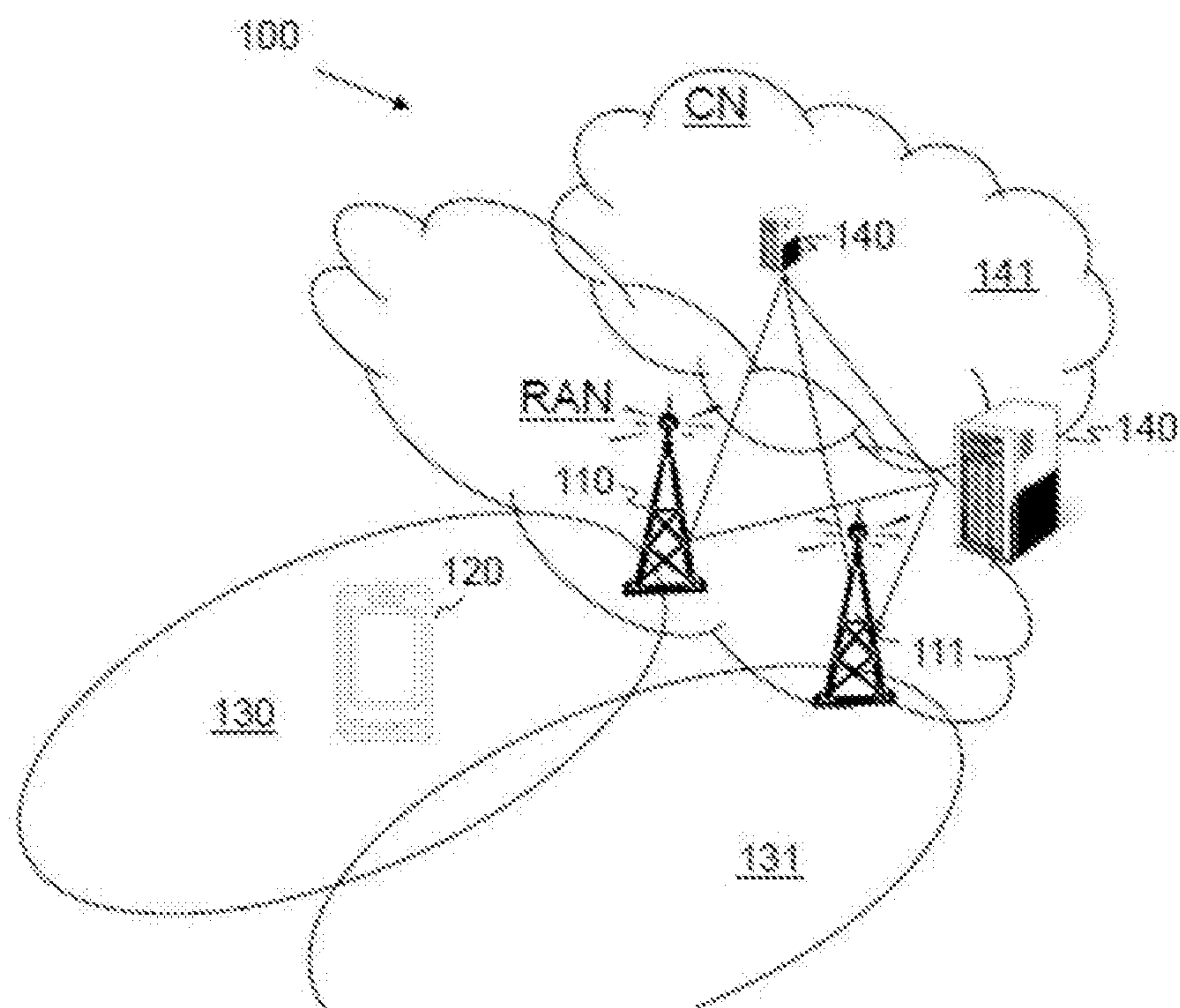
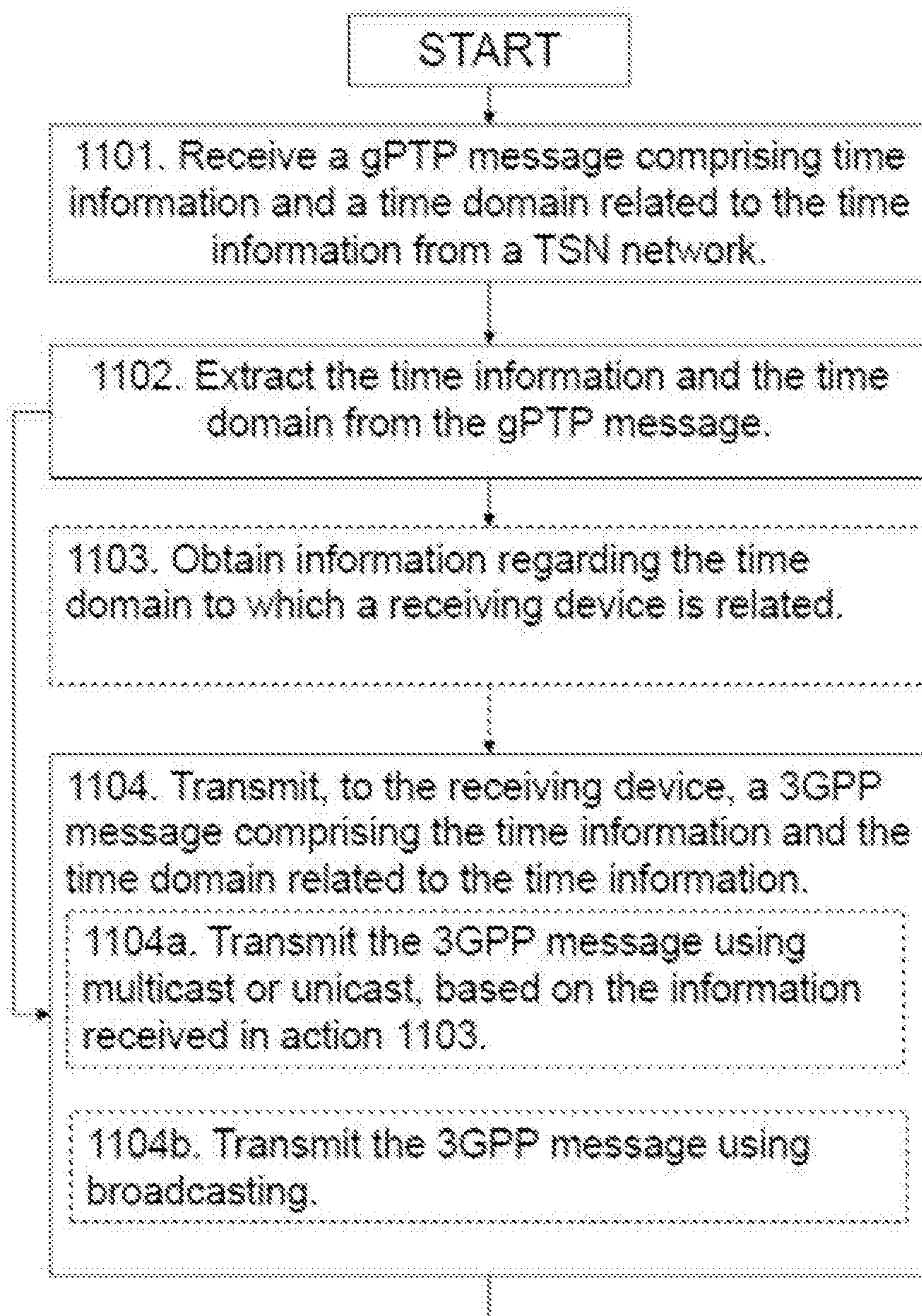
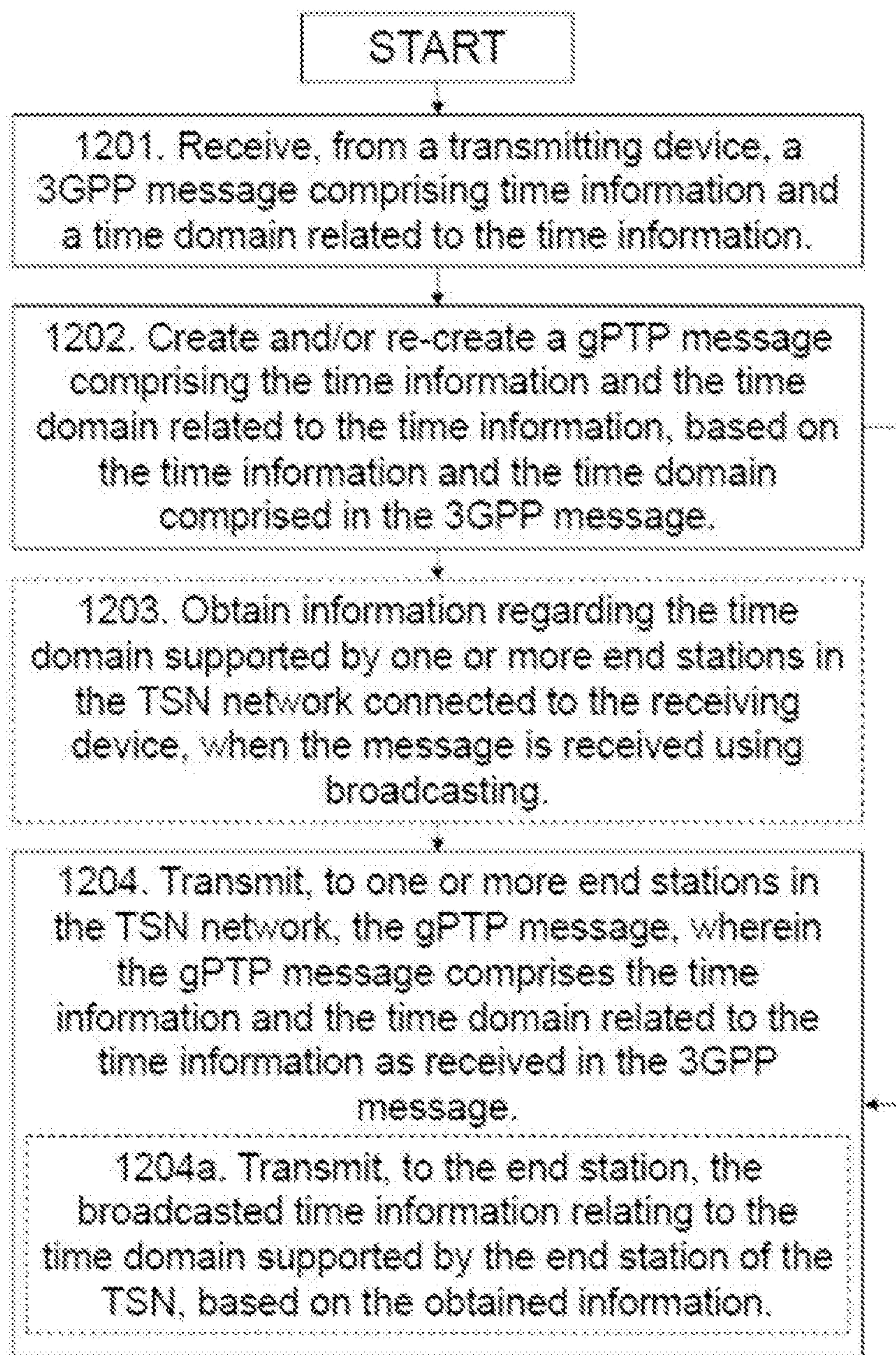


Fig. 215

**Fig. 216**

**Fig. 217**

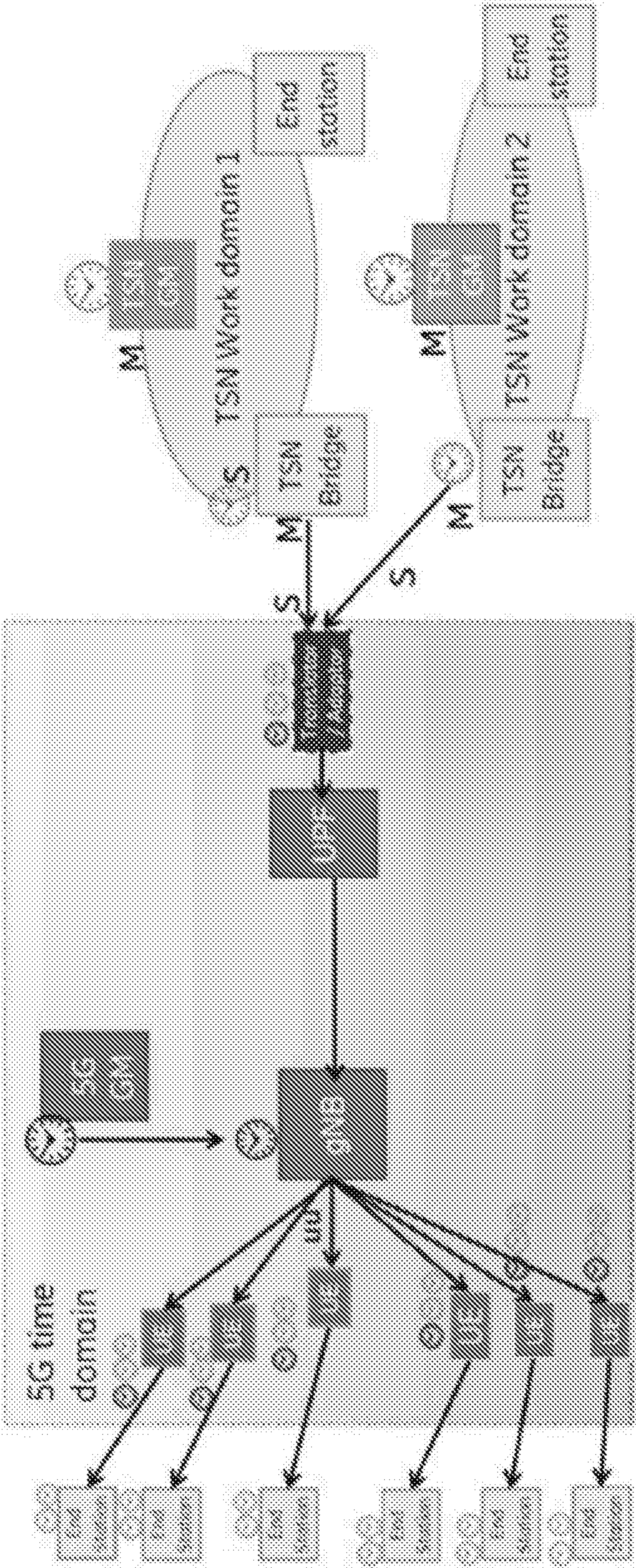


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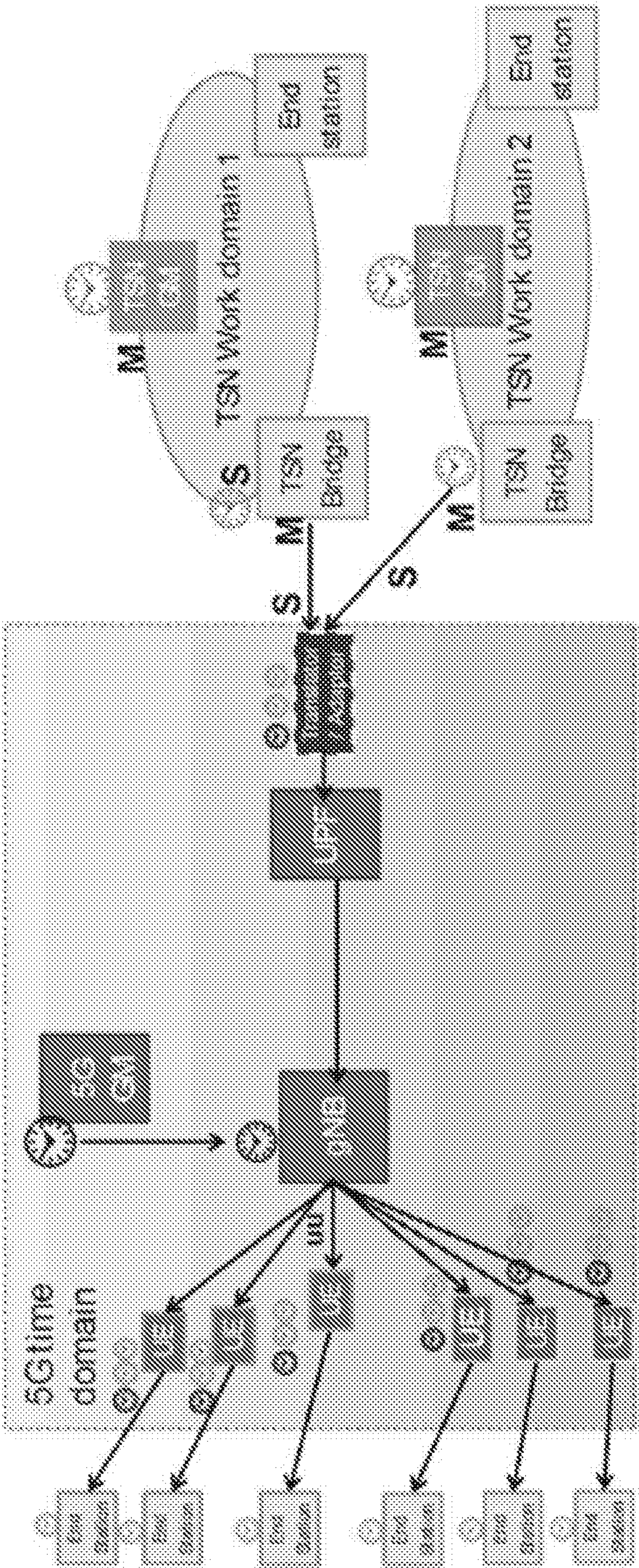


Fig. 219

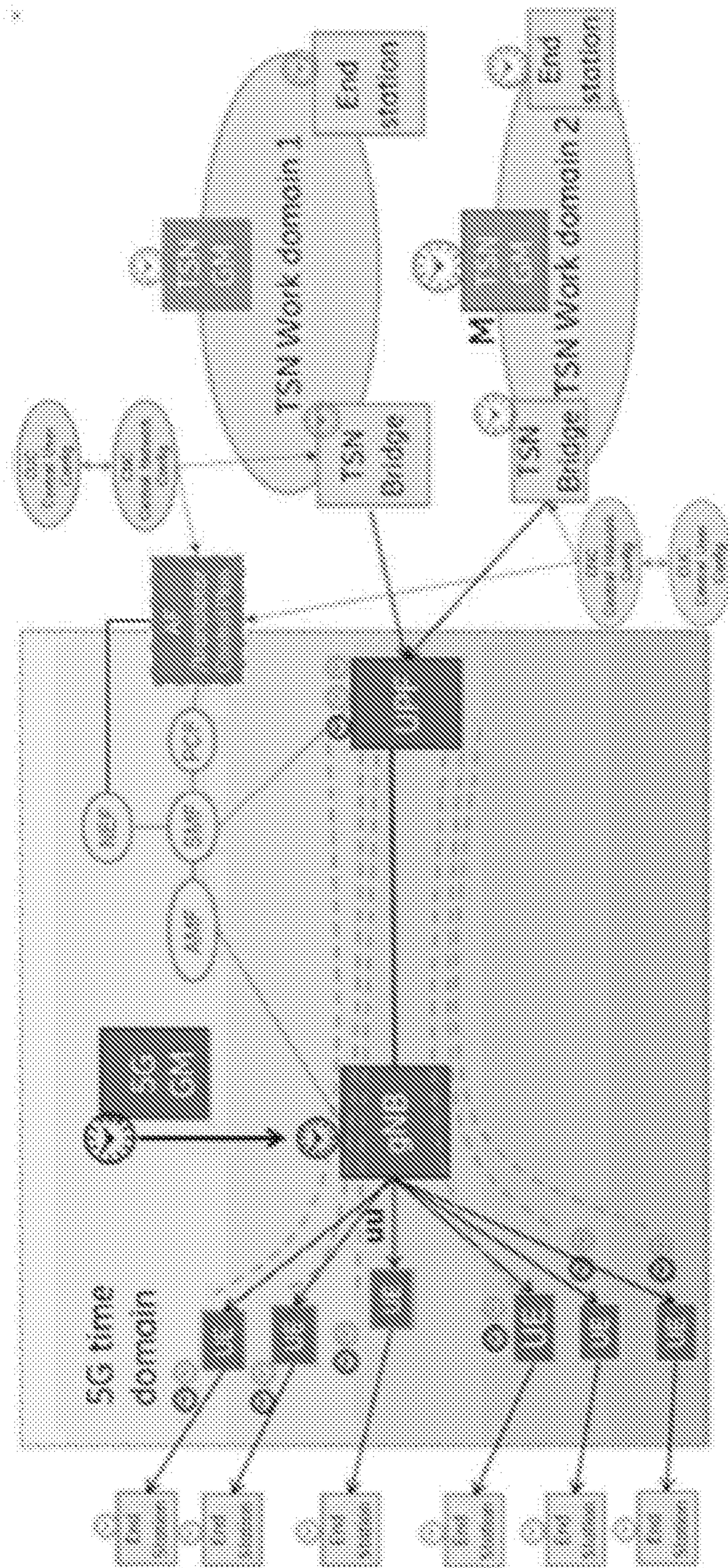
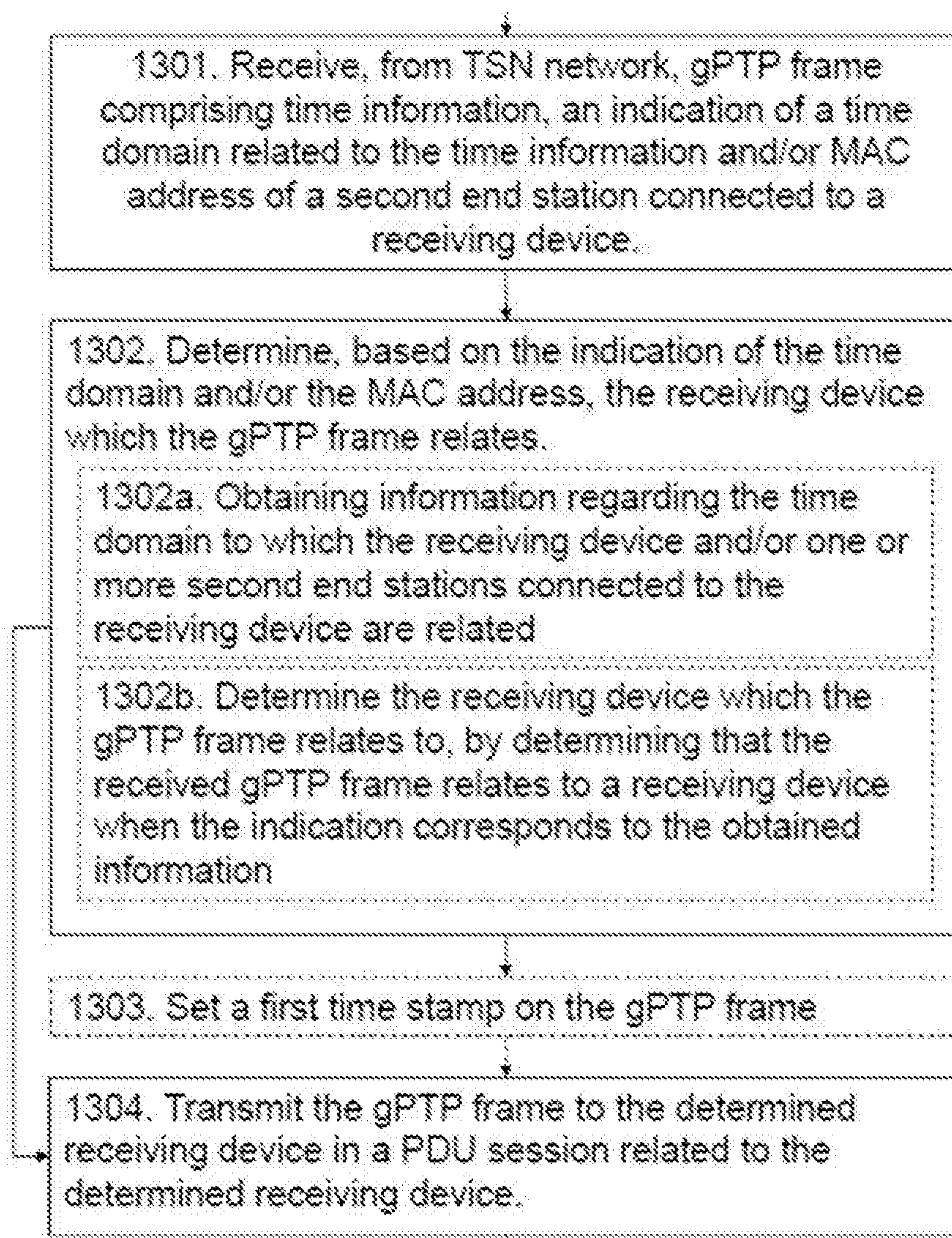
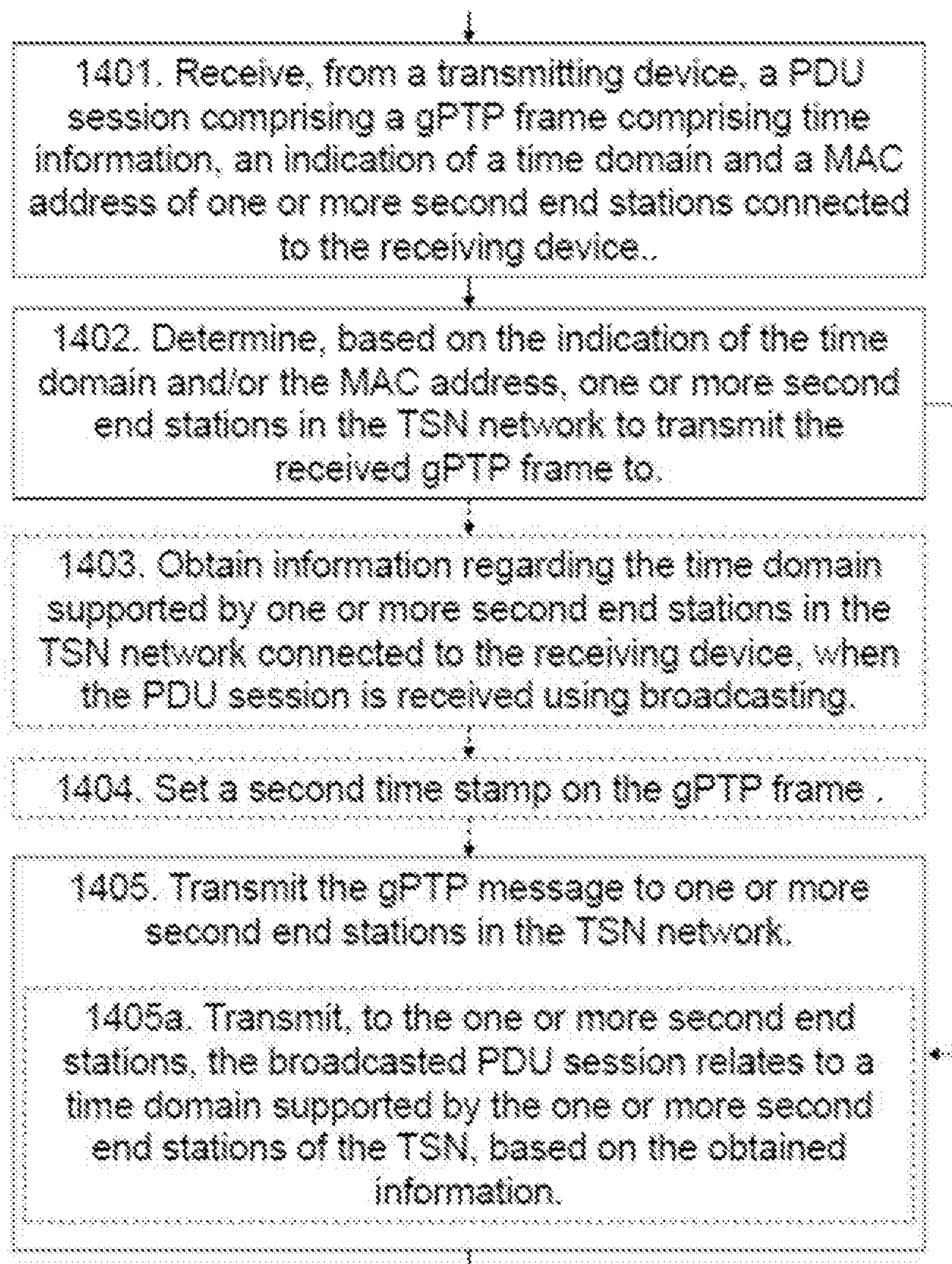


Fig. 220

**Fig. 221**

**Fig. 222**

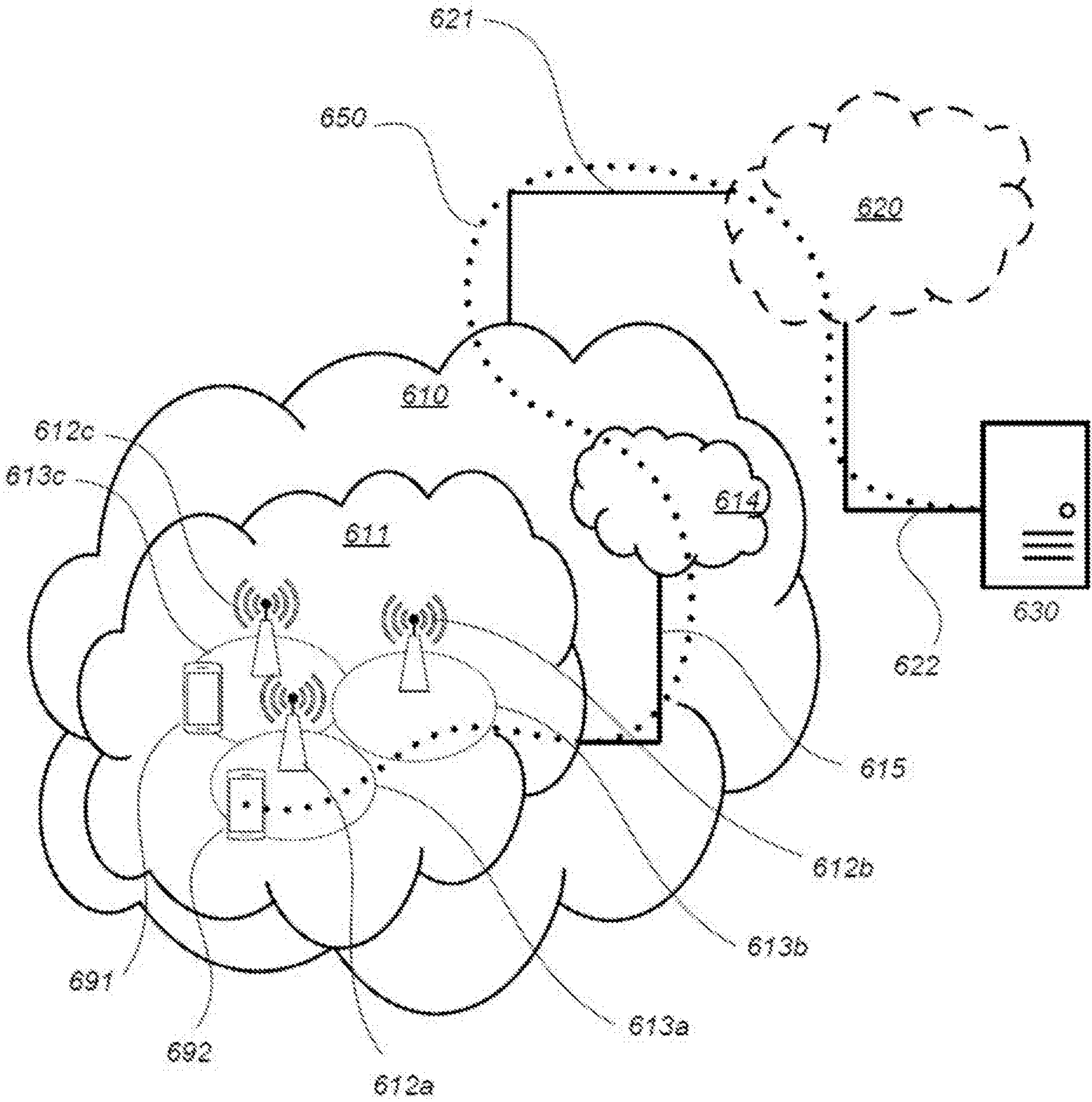


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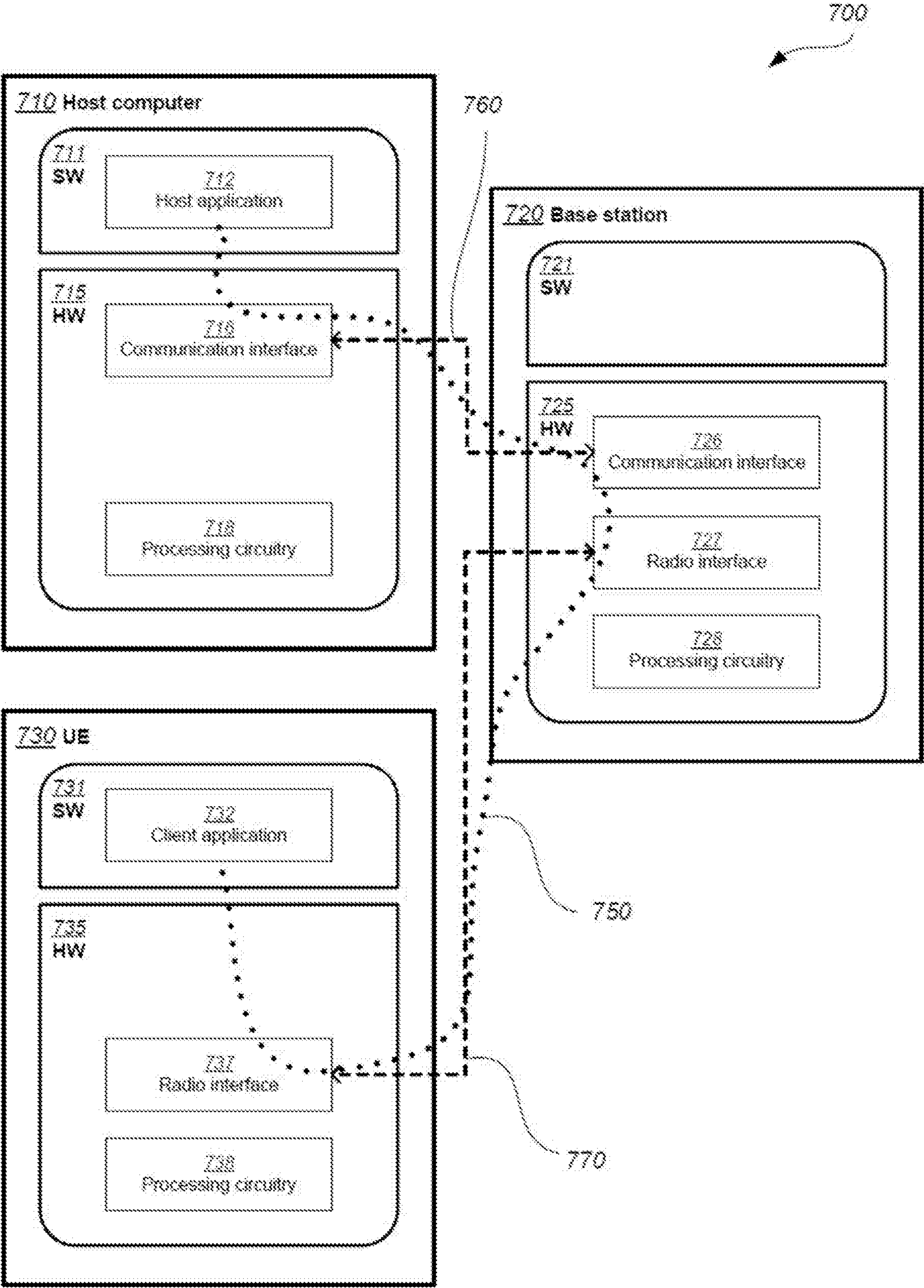
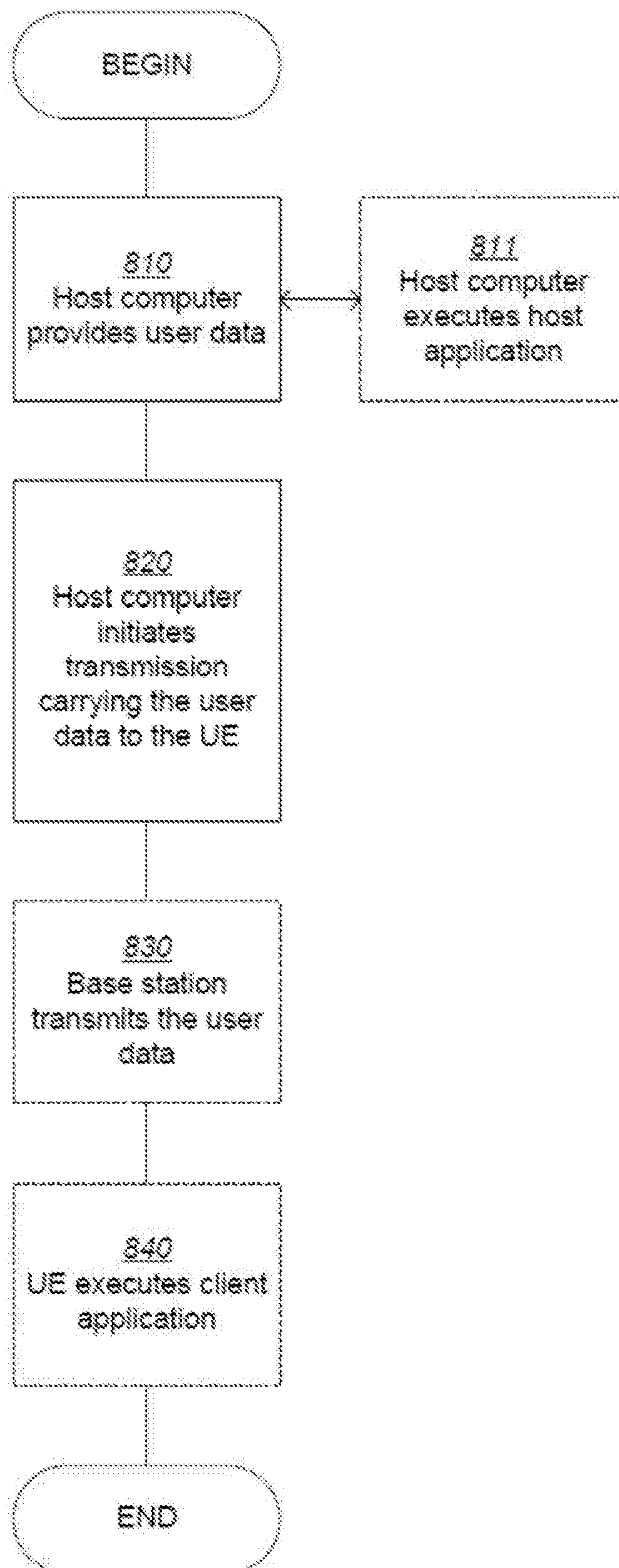


Fig. 224

**Fig. 225**

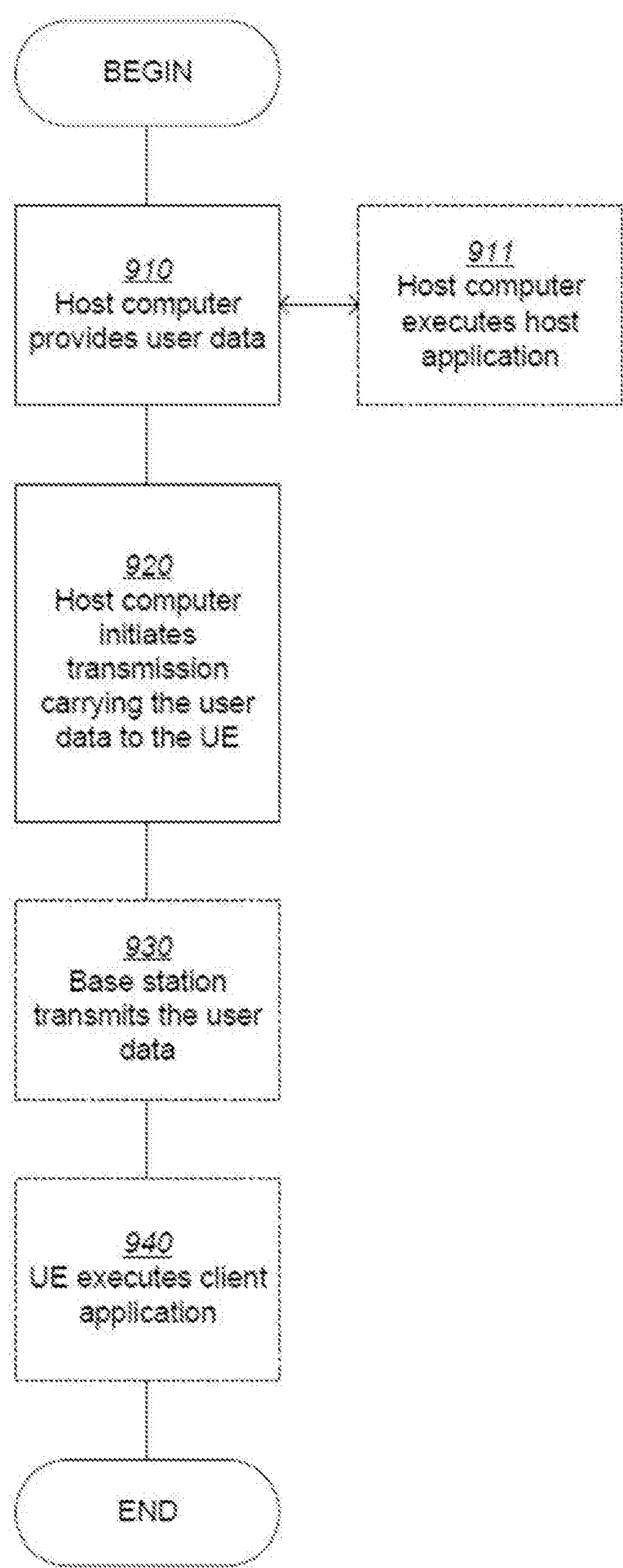


Fig. 226

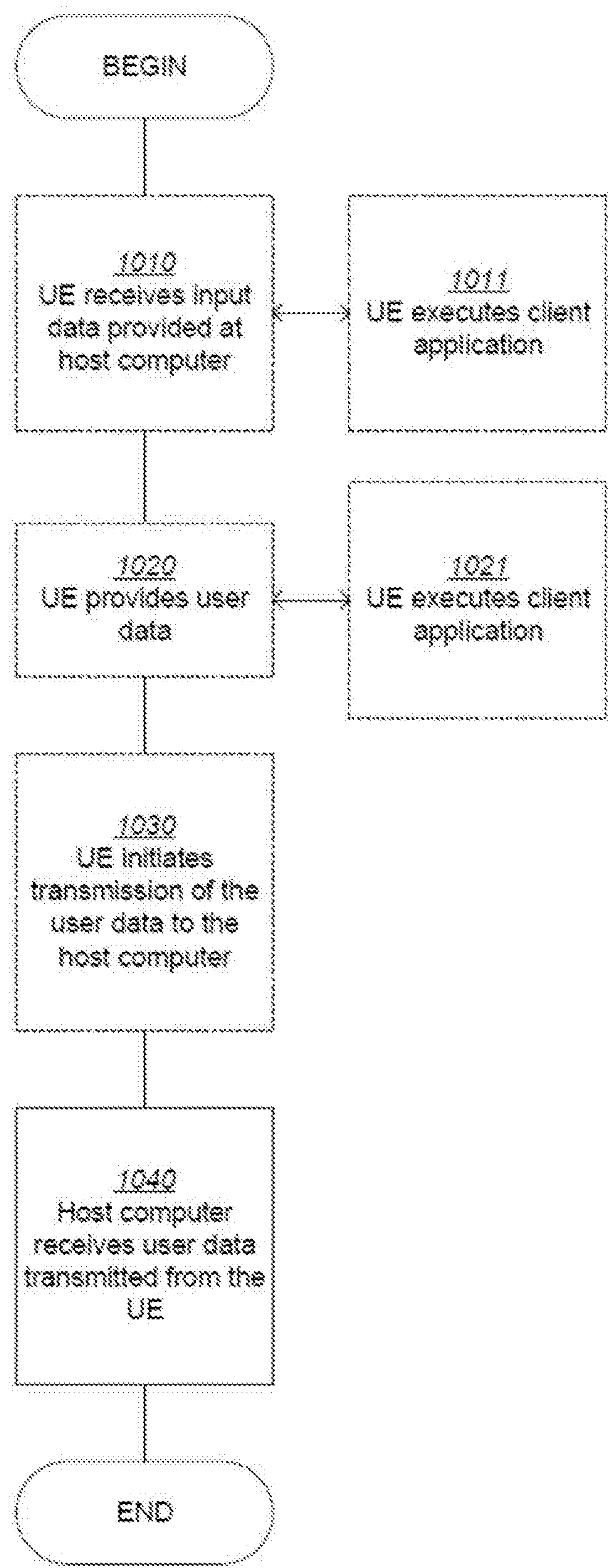
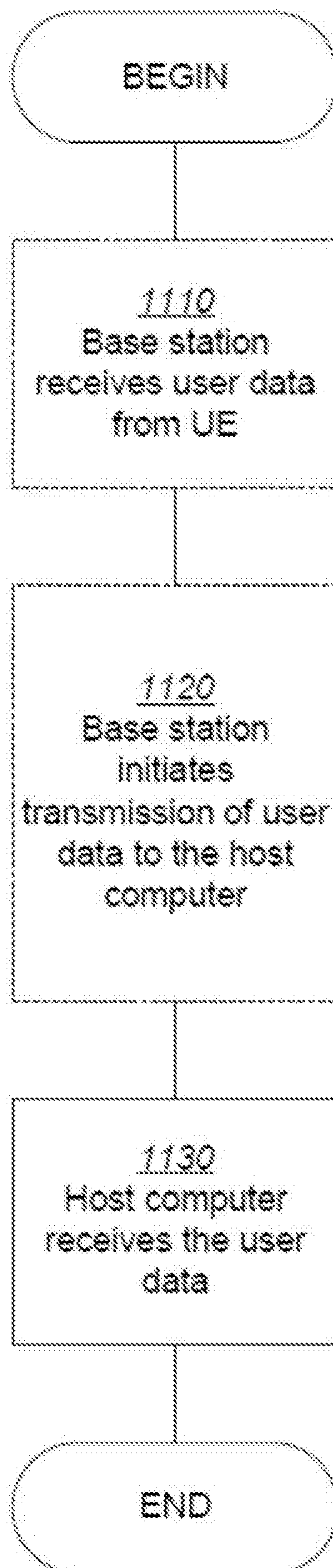


Fig. 227

**Fig. 228**