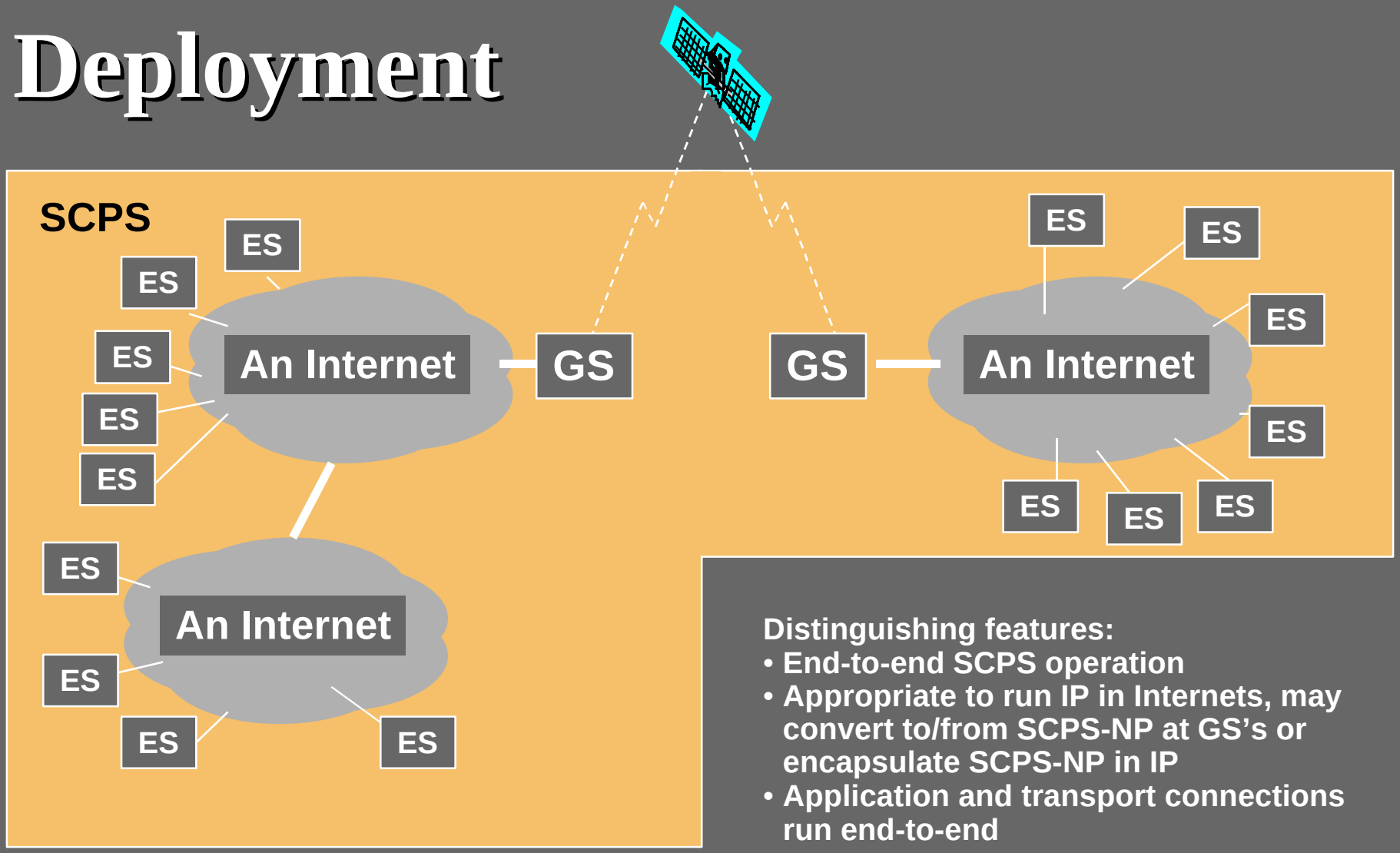
SCPS Application and Implementation Examples

Example SCPS implementation and deployment approaches

- Deploy SCPS end-to-end (in all end systems)
- Deploy SCPS only in “challenging” environment, use transport layer gateways to convert to/from unmodified Internet
- Deploy SCPS in some end systems, provide transport gateway to unmodified Internet

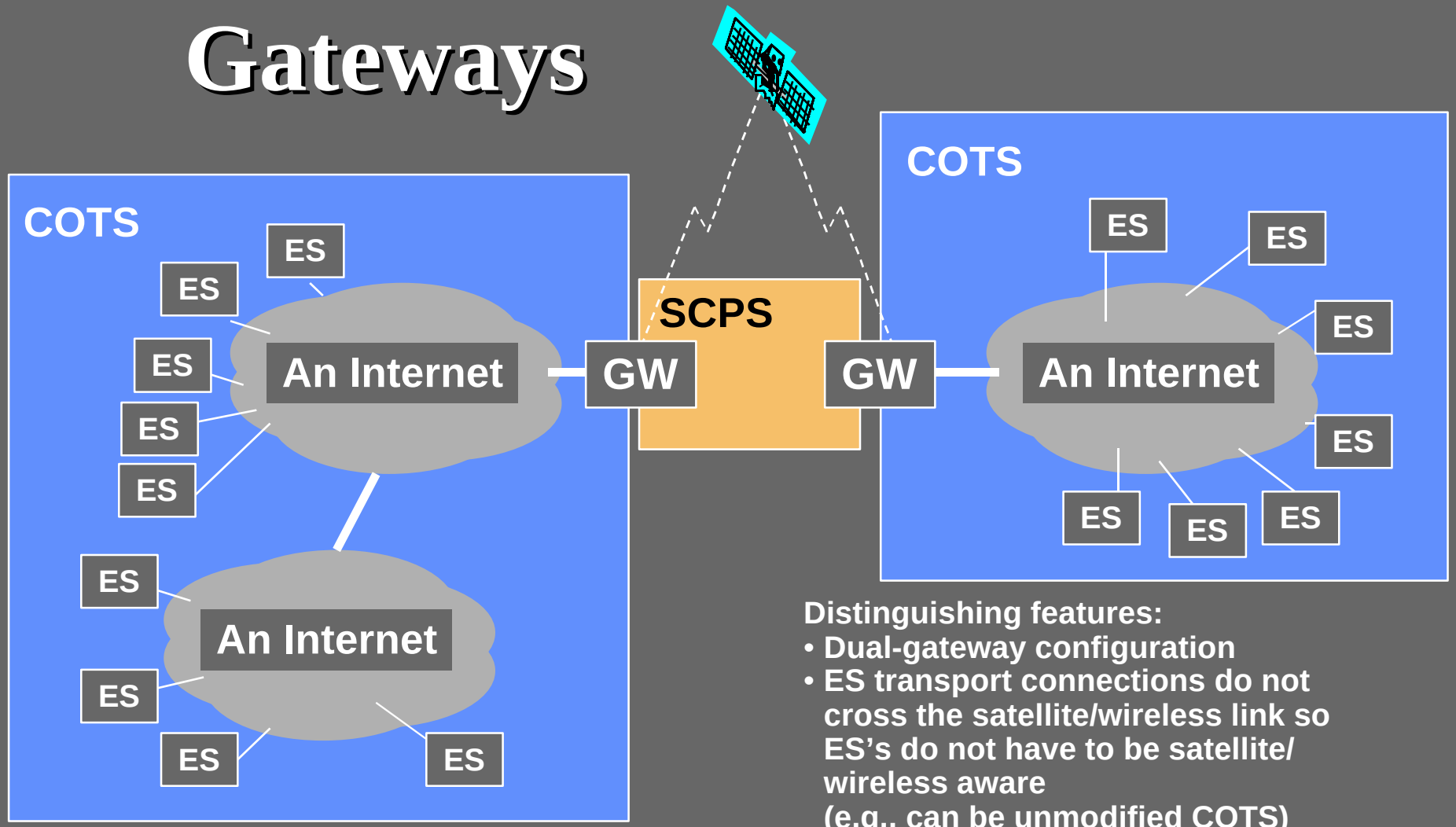
Deployment Alternative: End-to-End SCPS Deployment



Distinguishing features:

- End-to-end SCPS operation
- Appropriate to run IP in Internets, may convert to/from SCPS-NP at GS's or encapsulate SCPS-NP in IP
- Application and transport connections run end-to-end

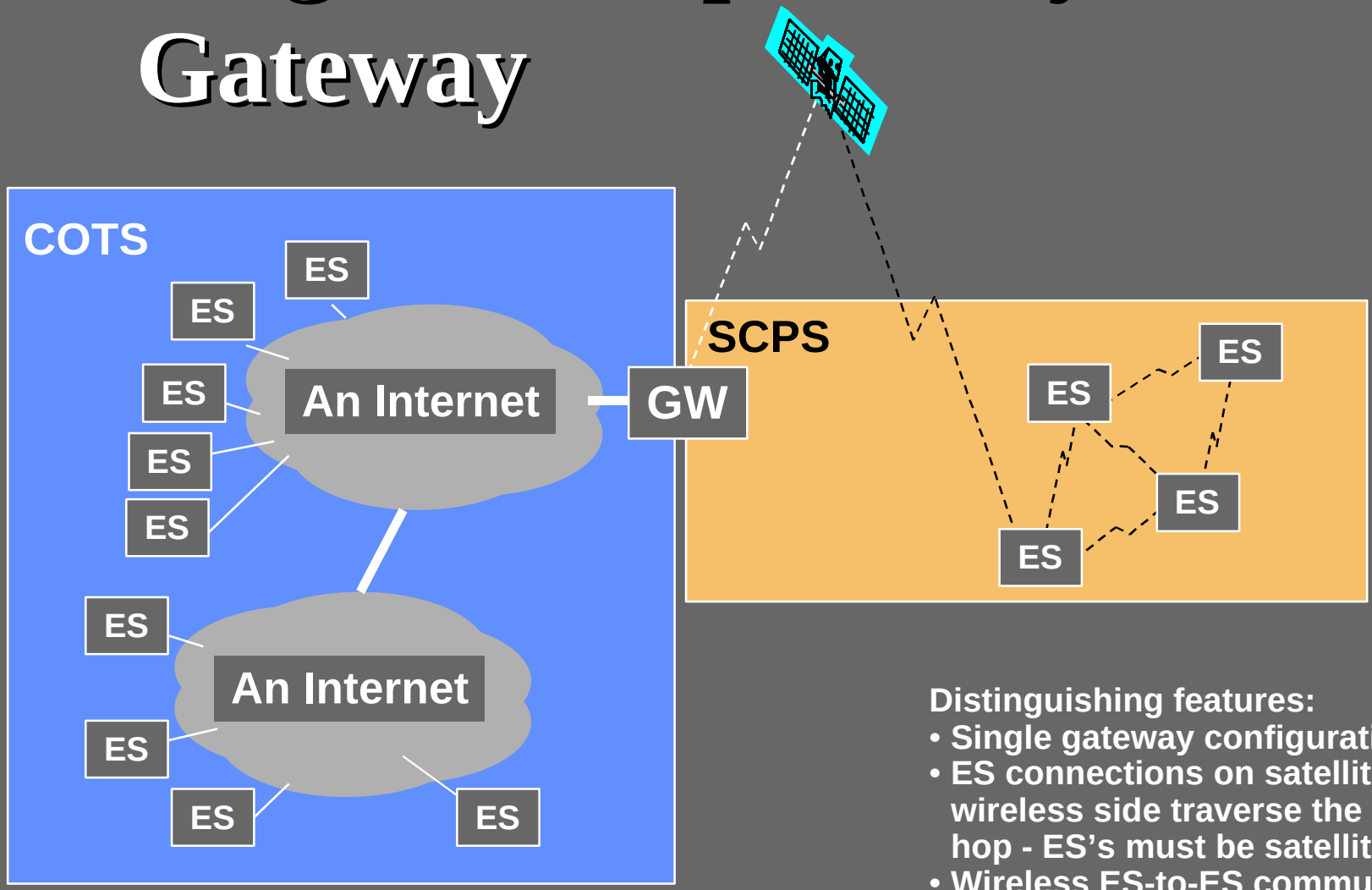
Deployment Alternative: Dual Transport-Layer Gateways



Distinguishing features:

- Dual-gateway configuration
- ES transport connections do not cross the satellite/wireless link so ES's do not have to be satellite/ wireless aware (e.g., can be unmodified COTS)
- Application layer connections run end-to-end

Deployment Alternative: Single Transport-Layer Gateway



Distinguishing features:

- **Single gateway configuration**
- **ES connections on satellite/ wireless side traverse the satellite hop - ES's must be satellite aware**
- **Wireless ES-to-ES communication via satellite possible without GW's**

SCPS Implementation Alternatives

	Advantages	*Disadvantages*
End-to-End SCPS	• End-to-end reliability • Use of IP infrastructure	• Requires modification of all end systems
SCPS Dual Transport Gateway	• High COTS use • Early deployment • Appropriate for SATCOM • Resolves Internet-over-Satellite issues	• Transport layer end-to-end semantics not preserved (Application layer semantics preserved)
SCPS Single Transport Gateway	• Allows SCPS end-to-end communication in target environment • Allows use of unmodified COTS in Internet hosts	• Requires modification of end systems in target environment • Transport layer end-to-end semantics not preserved between Internet and target environment