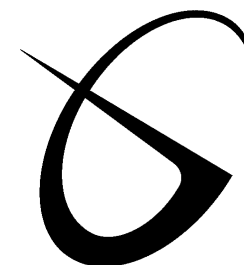


Facilitating Satellite Networks Thru Effective Regulation

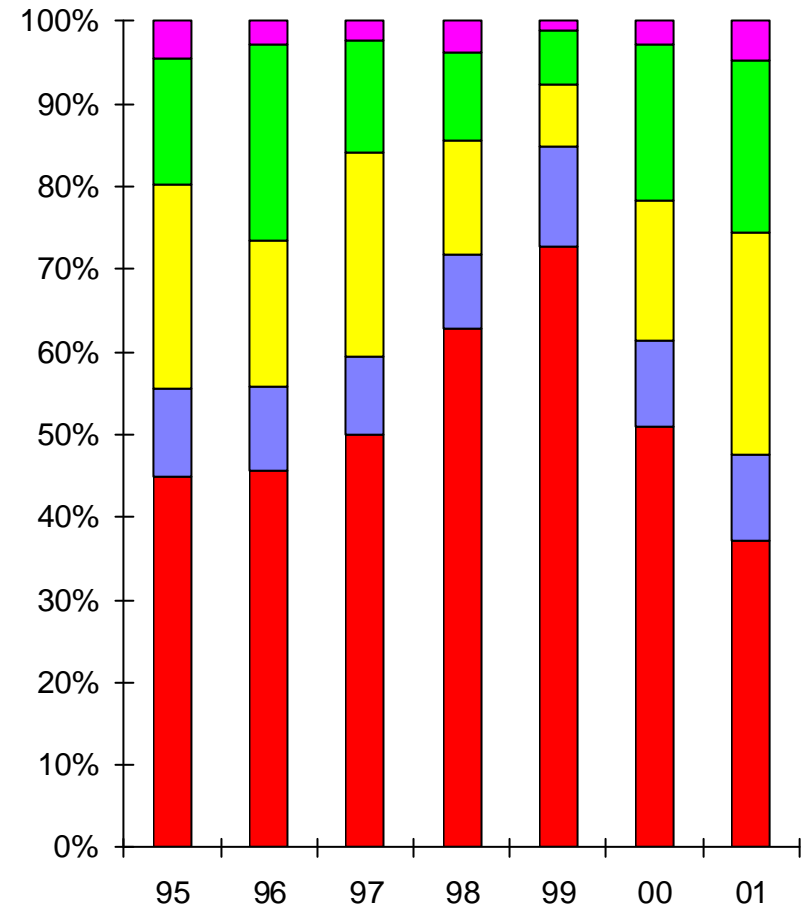
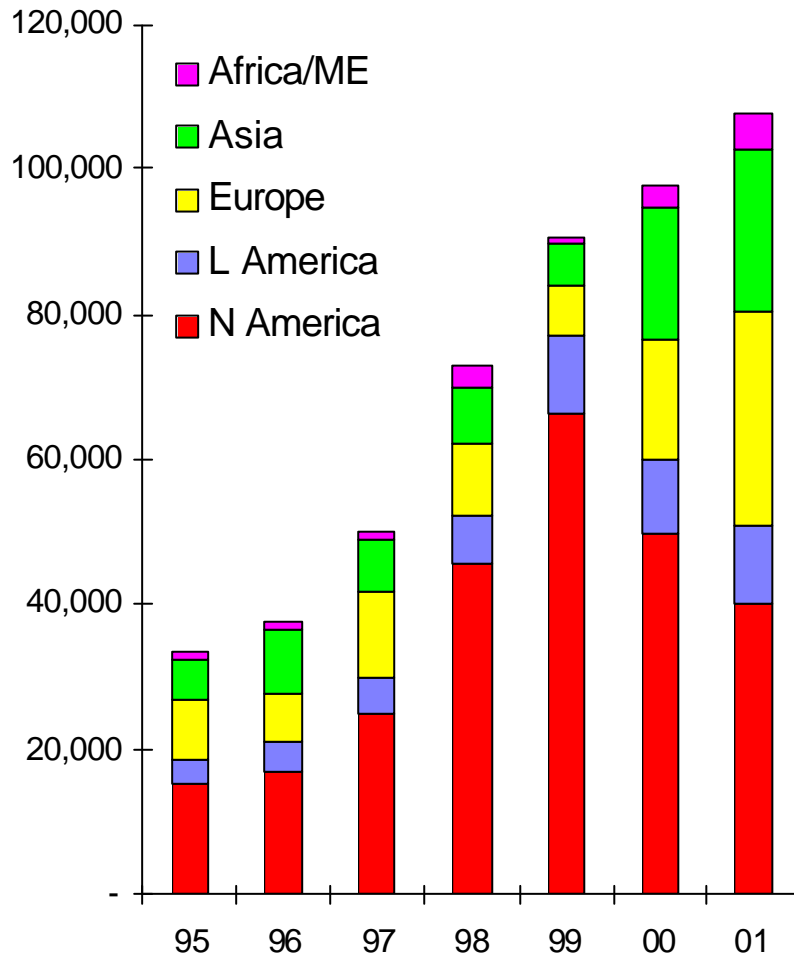


David Hartshorn

*Secretary General
Global VSAT Forum*



Emerging-Region Sales Emerge*



*Bookings: Doesn't Include Consumer Sales

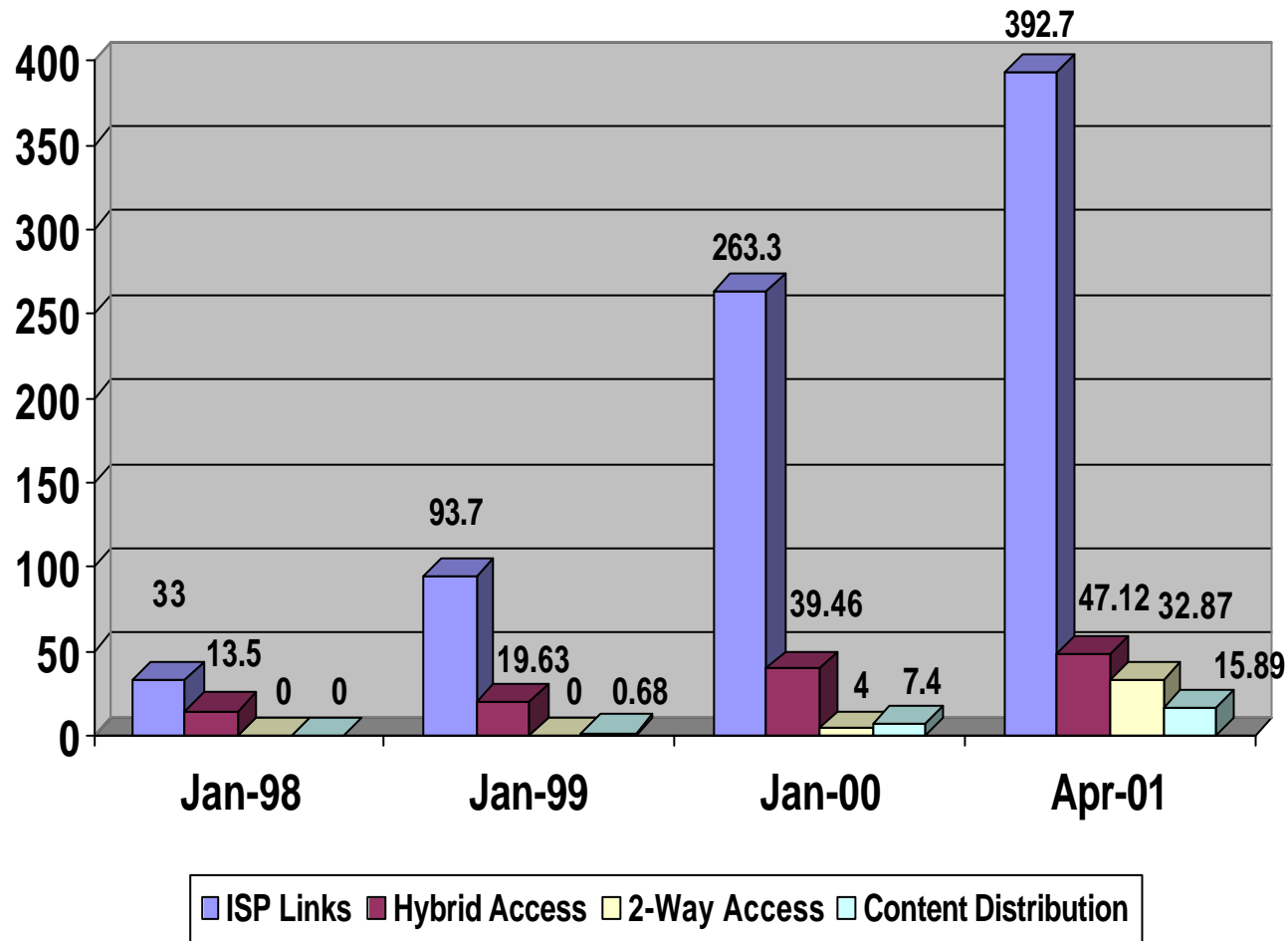
Source: COMSYS

Applications Segmentation

	N.A.	Eur.	A.P.	L.A.	A/ME
Retail	*****	*			****
Auto.	*****	*****		**	
Utility	*****	**	*****		
Finan.	**	****	*****	*****	*****
Manf.					*
Svcs.		*****	****	***	***
Info.			****	***	*

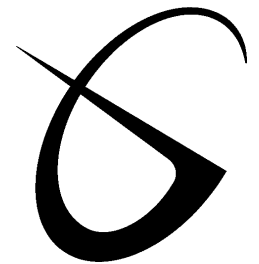
Source: COMSYS www.comsys.co.uk

Internet Satellite Use*



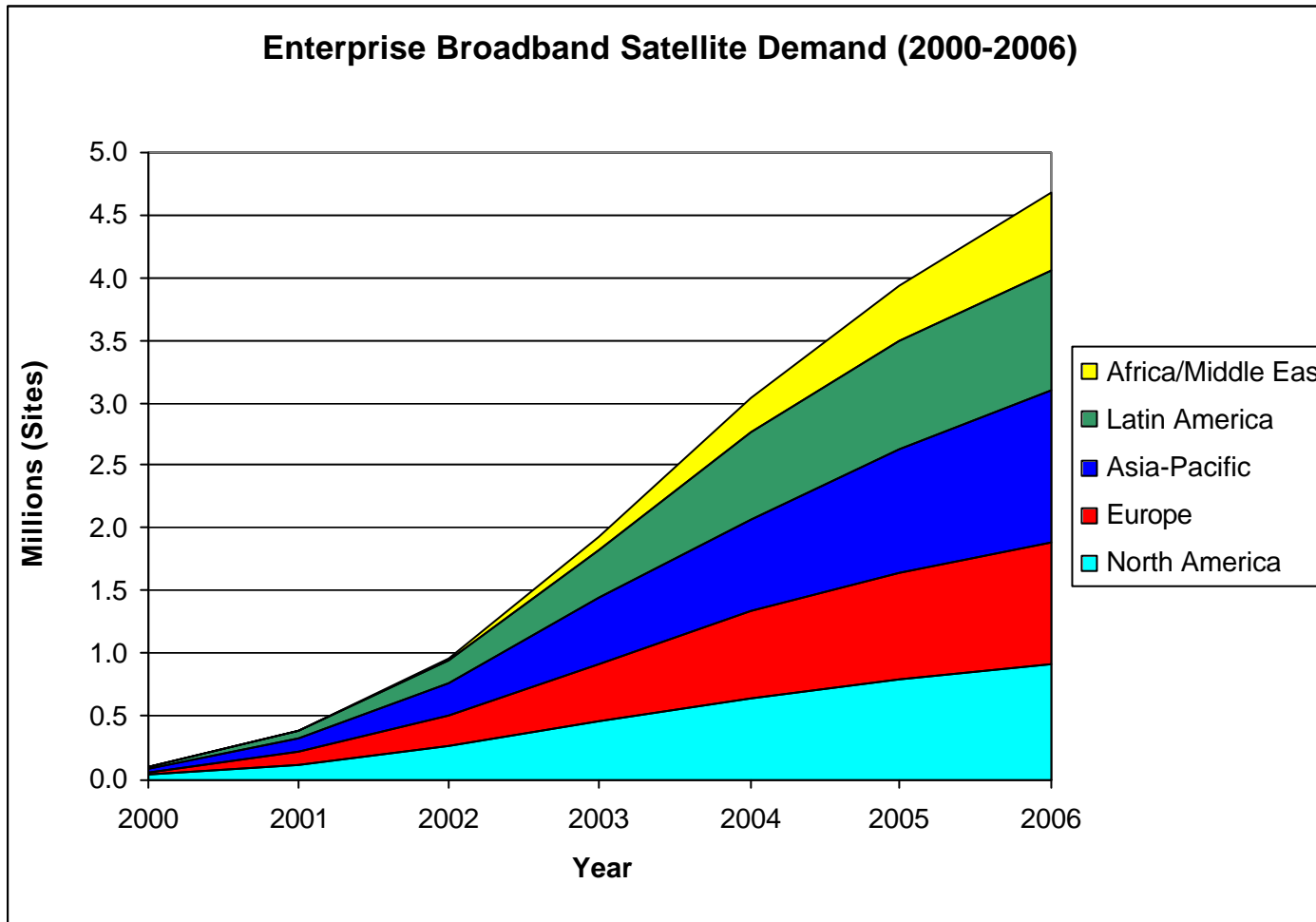
Source: DTT Consulting

*36 MHz Equivalent



Broadband Satellite Access Market Forecasts

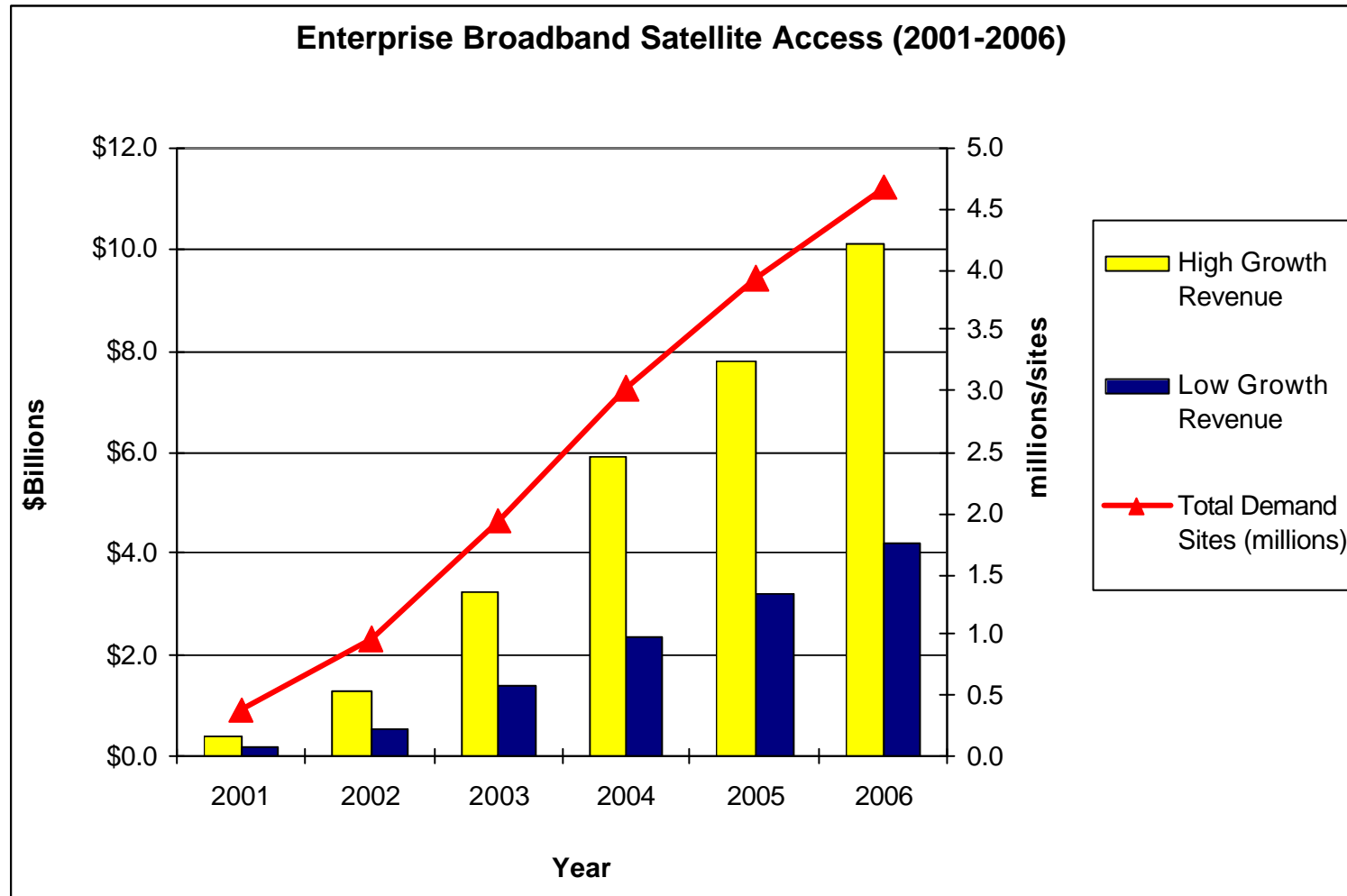
Enterprise Demand (sites)



- Rank**
1. Asia/Pacific
 2. Europe
 3. North America
 4. Latin America
 5. Africa/Middle East

Broadband Satellite Access Market Forecasts

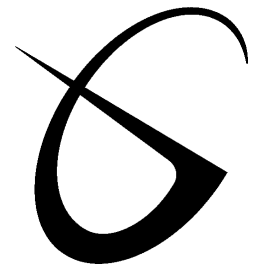
Enterprise Access Service Revenue (Demand vs. Supply)





Policy Implications

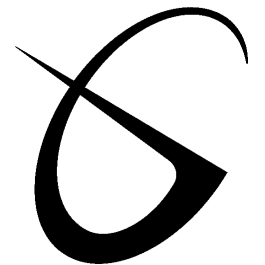
- Satellite Has a Strong Track Record
- Essential Tool for Broadband Delivery
- Policy Can Facilitate Its Use
- To Elevate Social Standards:
 - Economic
 - Health
 - Education





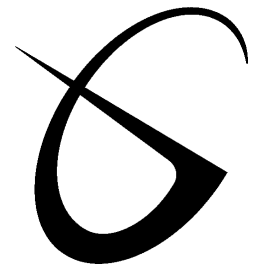
But...

- High Licensing Fees
- Slow Licensing Process
- Lack of Transparency
- Restricted Use of Satellite Capacity
- Costly Type Approvals Requirements



GVF: The Industry Association

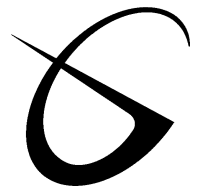
- Comprising Int'l VSAT Community
- 155 Members
- Non-Profit
- Non-Partisan
- Serving as Industry's Unified Voice



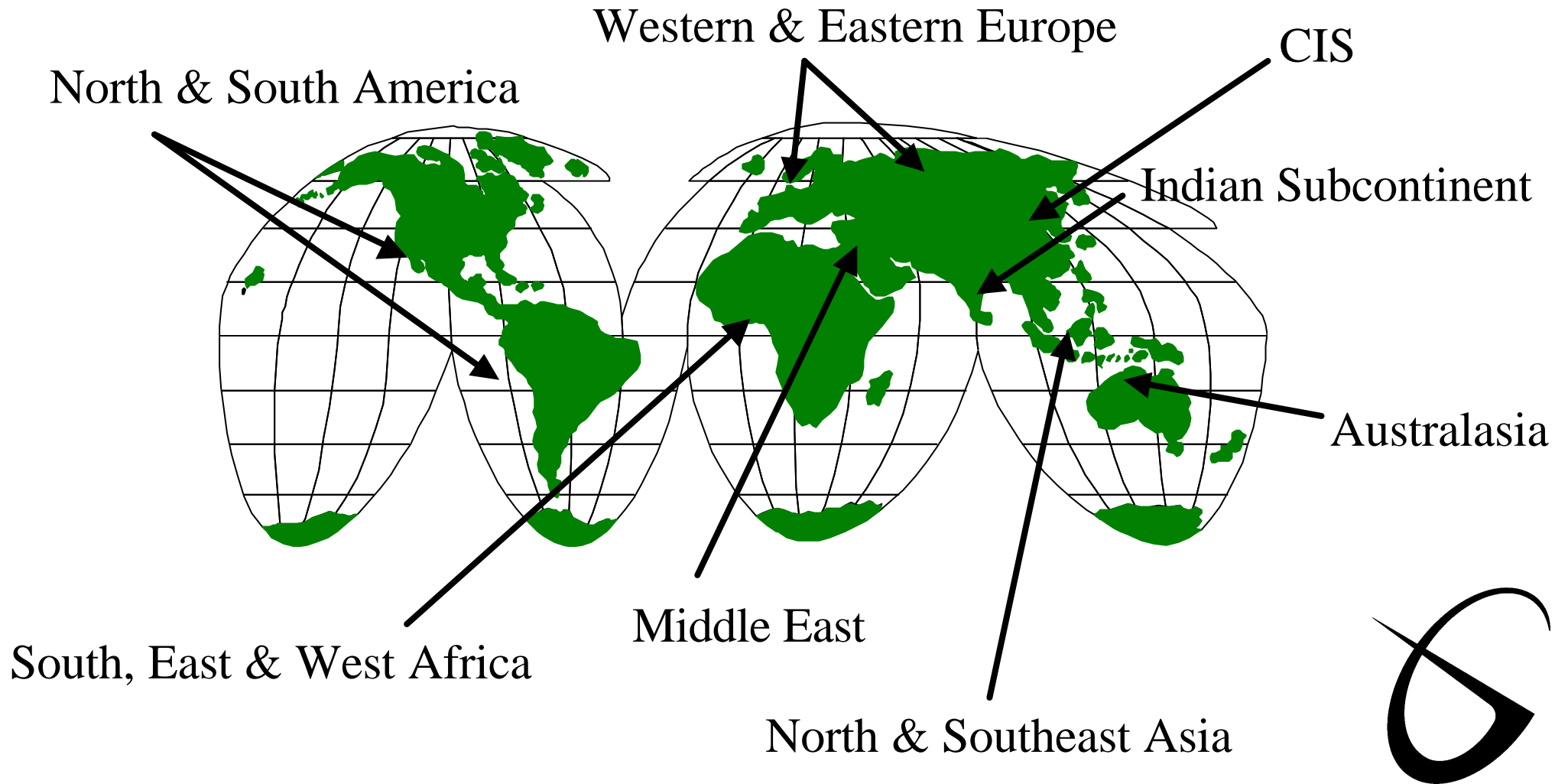


GVF Regulatory Working Group

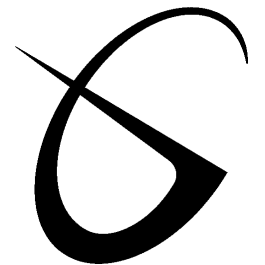
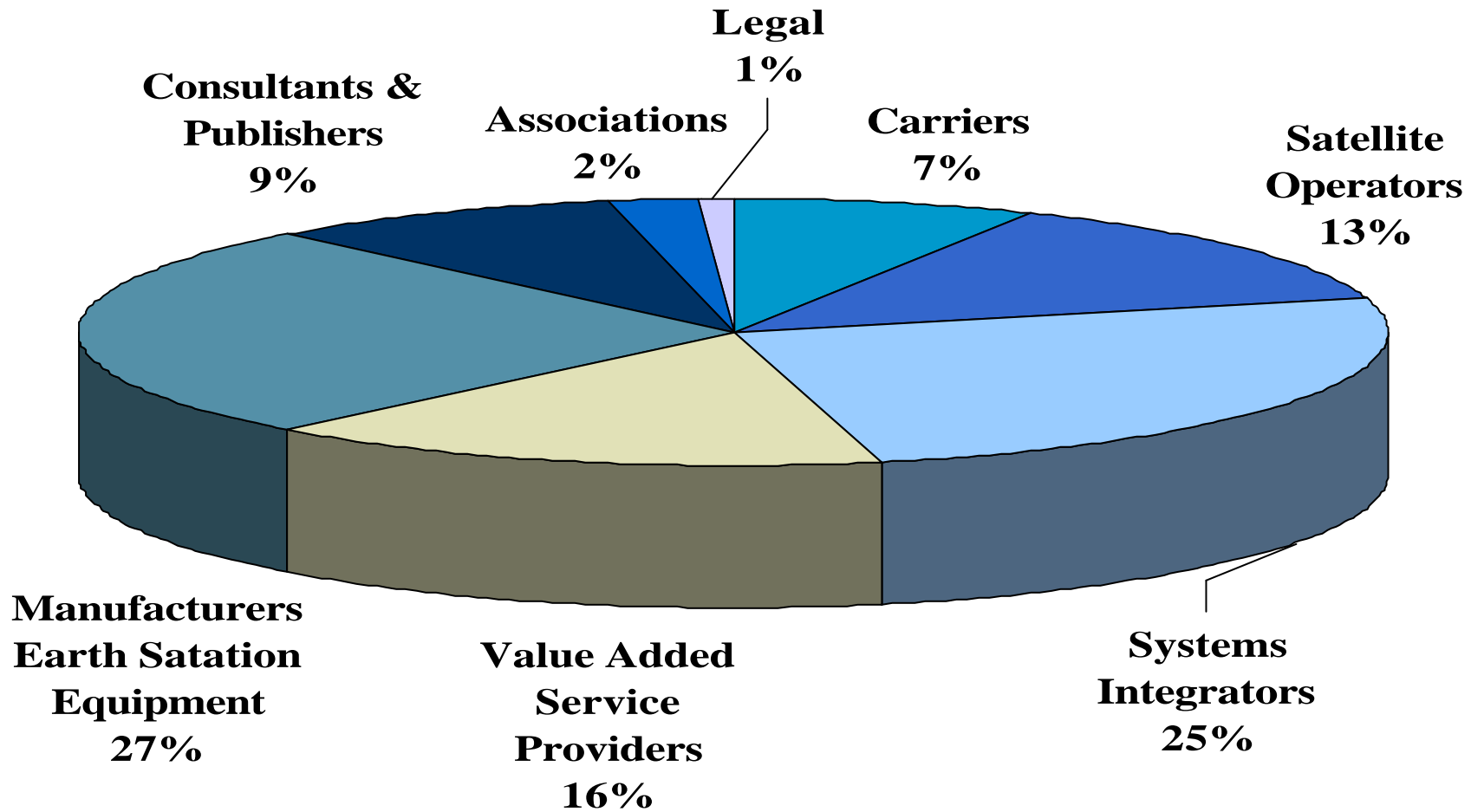
- A bridge between regulators and the global satellite industry
- Develop and promote effective practices
- Help make VSAT licensing information transparent and easily obtainable



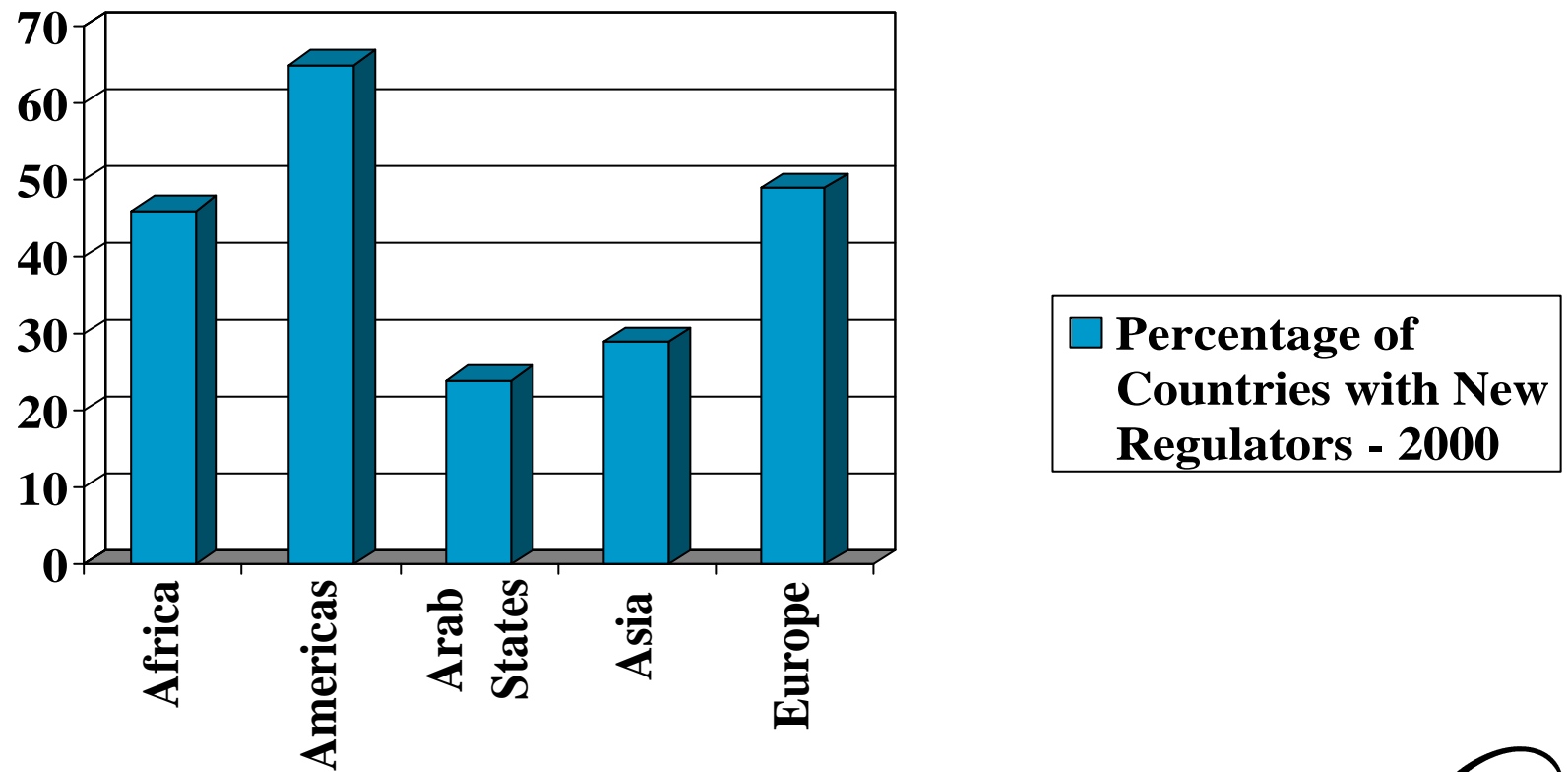
Members from 45 Nations



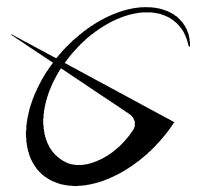
The GVF Brain Trust



The Independent Regulator



Source: ITU





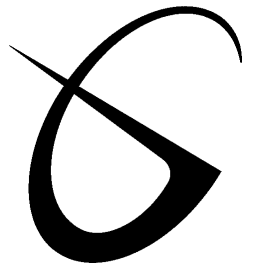
Broadband Satellite Reform: Acting Nationally, Thinking Regionally

■ Challenge:

- Onerous Licensing
- Non-Transparency
- Slow Type Approvals
- Stifled Competition
- Restricted Access to Satellite Capacity

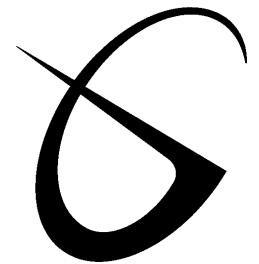
■ Solution/Trend:

- Licensing Reforms
- One Stop Shops
- MRA, Self Declaration
- Liberalization
- Improved Access to Satellite Capacity





1. STREAMLINED LICENSING





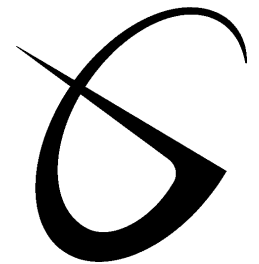
The Blanket Licensing Concept

- Define Criteria for VSAT Terminal Type That Ensures No Interference Caused
- Issue Single 'Blanket' License for Thousands of Identical-Type VSATs
- Vital Services Are Provided Faster and at a Much Lower End-User Cost



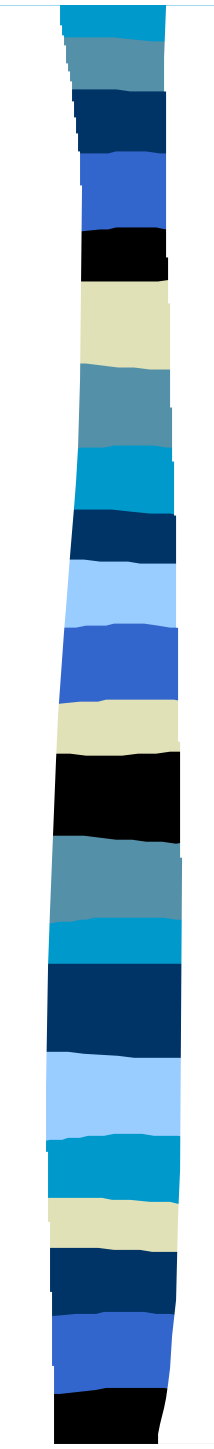
VSAT Licensing In Europe

- Two Years Ago
- CEPT Case Study
- Individual Terminal Licensing, Plus
 - Cost based pricing
 - Cost based pricing with differentiation
 - Administrative incentive pricing
 - Auctioning

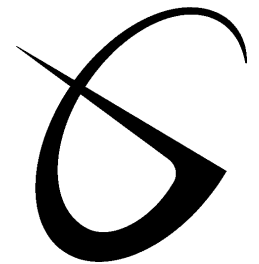


Technical elements:	A	B G	C R	C Z	D	D K	E S T	F I	F R	H	I R L	I	L V	N	P L	P	E	S	C H	U K
Transmitter output power	X			X							X									
Data bit rate			X																	
Number of channels used	X																			
Frequency assignment	X				X									X		X	X			X
Frequency band					X					X	X			X		X	X			X
Bandwidth used		X				X					X			X		X	X			X
Use of exclusive bands or not	X					X												X		
Type of station						X				X										
Type of link																X				
Type of service																				
Type of signal transmitted		X																		
Broadcasting for radio or TV																				
Provision on a commercial basis	X															X	X			
Digital vs analogue	X																			
Administrative factors																				
Need for co-ordination or not	X				X			X												
Charge per transmitter/station	X	X			X	X		X	X		X	X	X			X		X		
Charge per link	X										X									
Monthly	X				X					X										
Yearly		X	X	X	X		X	X	X		X	X				X	X	X	X	
Ad-hoc inspection												X								
Size/reach of the system																				
Number of stations			X						X		X		X	X						
Geographical coverage	X					X														X
Gross annual revenues		X																		
Size of the company		X												X						
Duration of licence												X				X				X
Type of fee																				
Frequency assignment fee																				
Frequency utilisation/use	X									X		X								
Spectrum fee		X		X		X	X		X		X		X		X	X	X			
One-off administrative fee		X		X			X		X			X	X							X
Yearly administrative fee						X									X					
Telecom licence fee	X				X							X								
EMC fee					X								X							
Linear vs decreasing fee																				X
Fee for control/monitoring		X					X					X								X

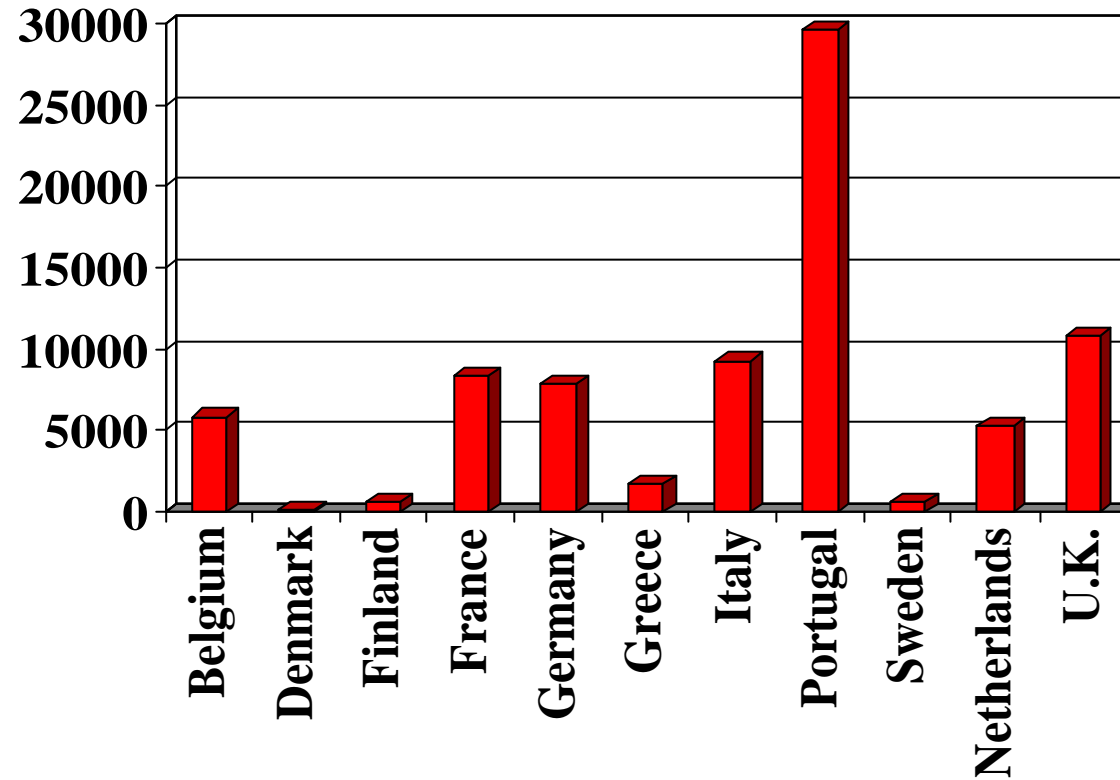
European Fees Case Study

- 
- Bi-directional
 - = 64 kbps
 - 200 kHz - 1 MHz
 - 10 ES + Hub
 - Located in Country
 - 1 Data Service
 - 1 Satellite
 - Connect to PSTN
 - No Coordination Needed

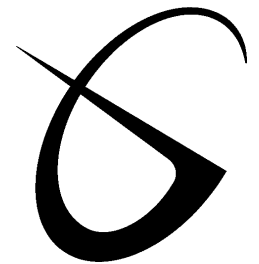
Source: SAP-REG



1st-Year VSAT Licensing Fees, '00



Source: SAP-REG





VSAT 'Decisions' Adopted

- If Spectrum Is Not At Risk
- And Harmful Interference Is Unlikely...
- Radio Equipment Could Be Exempted from An Individual License

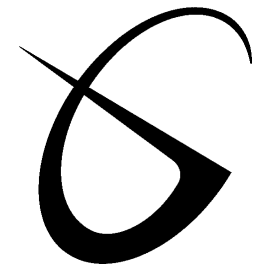
- "ROES" Meet Those Criteria
- "VSATs" Meet Those Criteria
- "SITs" and "SUTs" Meet Those Criteria



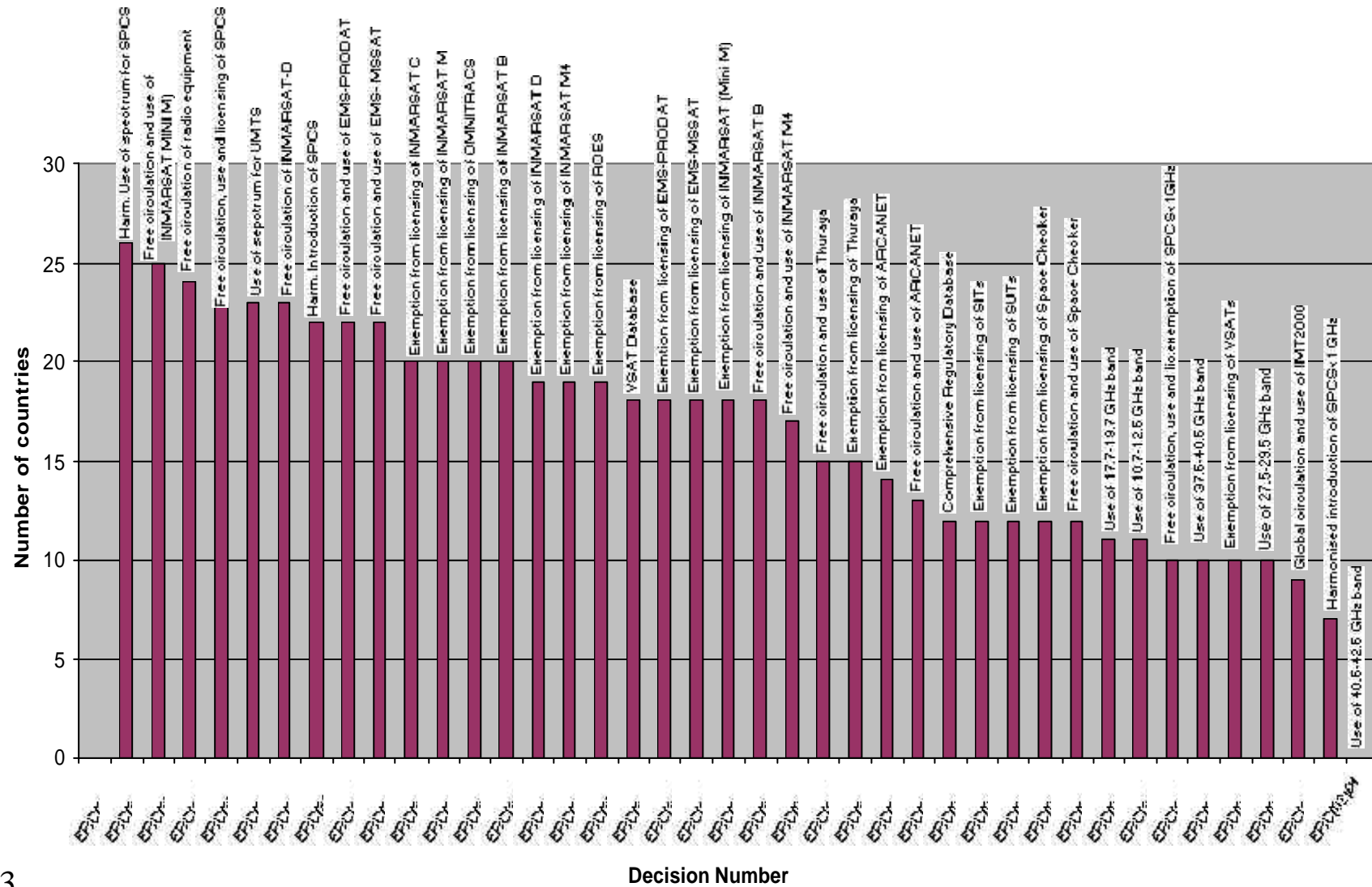
“VSAT” Licensing Exemption Example

- Ku-band
- $\leq 2\text{W}$ RF Power
- $\leq 3.8\text{M}$ Aperture
- $\leq 50\text{ dBw}$ EIRP
- ETSI Definition of “VSAT”
- $\geq 500\text{M}$ Outside Airport Perimeter
- $\leq 20\text{ V/M}$ Aircraft Immunity Level

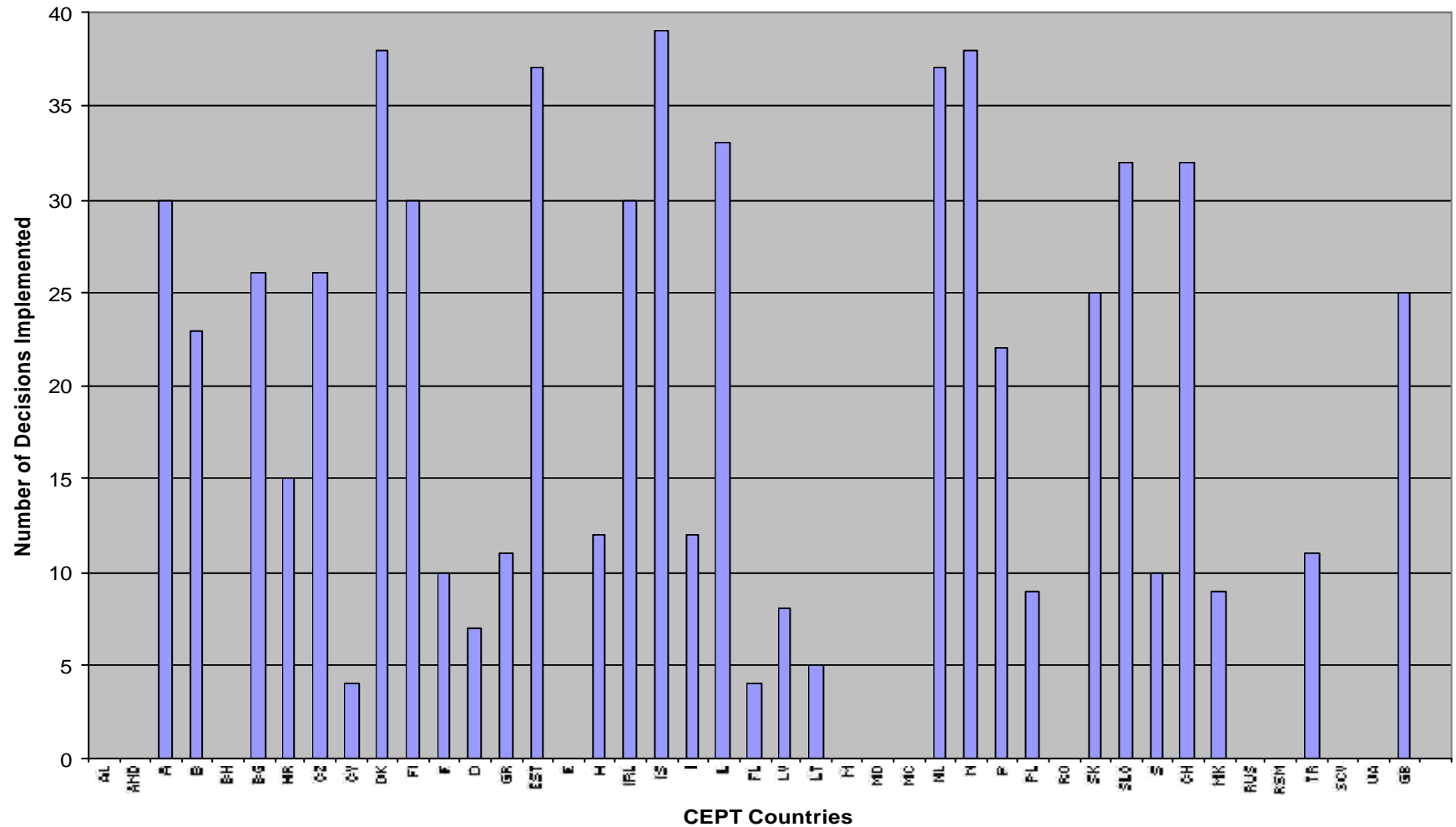
ERC/DEC(00)05



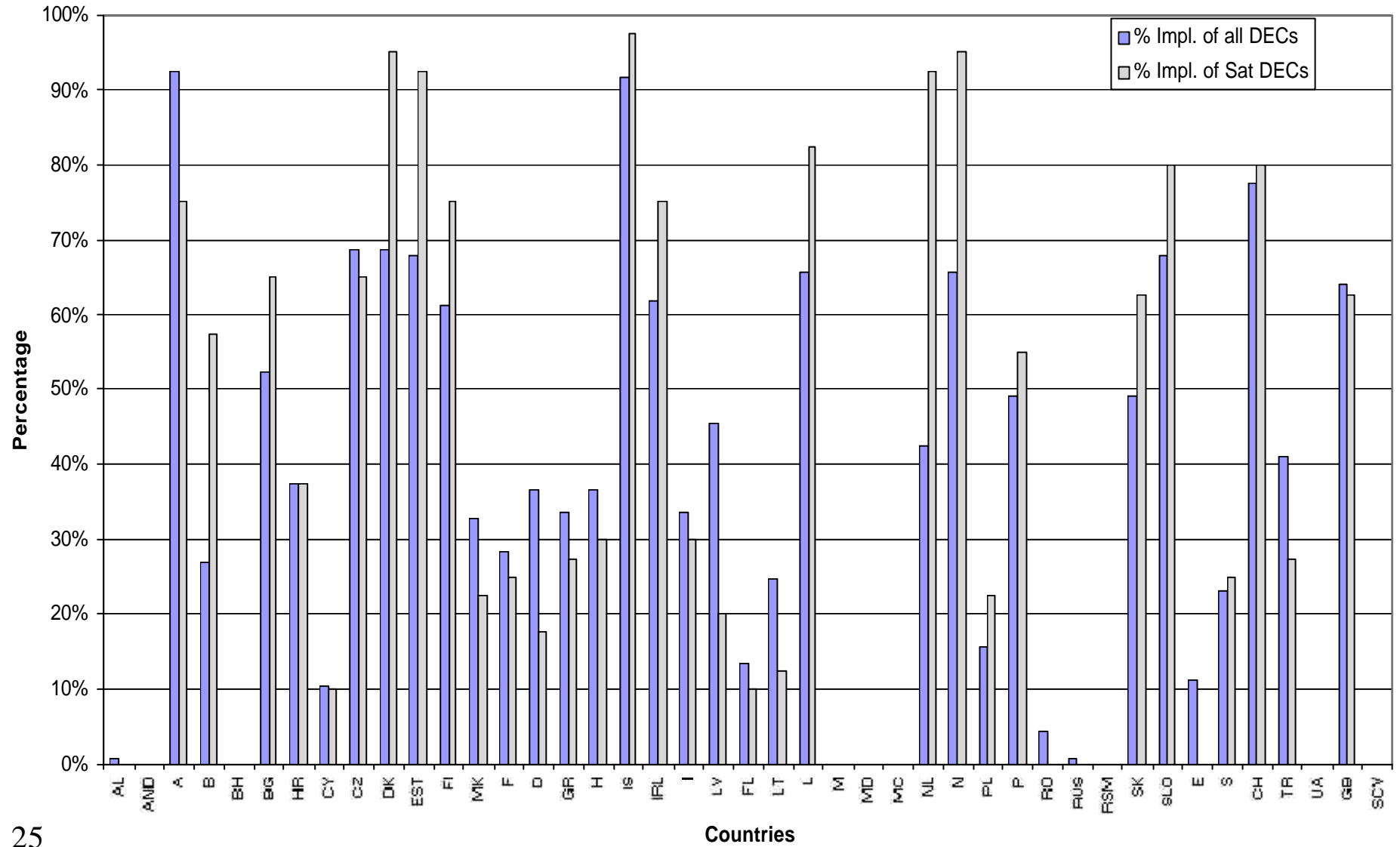
Implementation, Most to Least



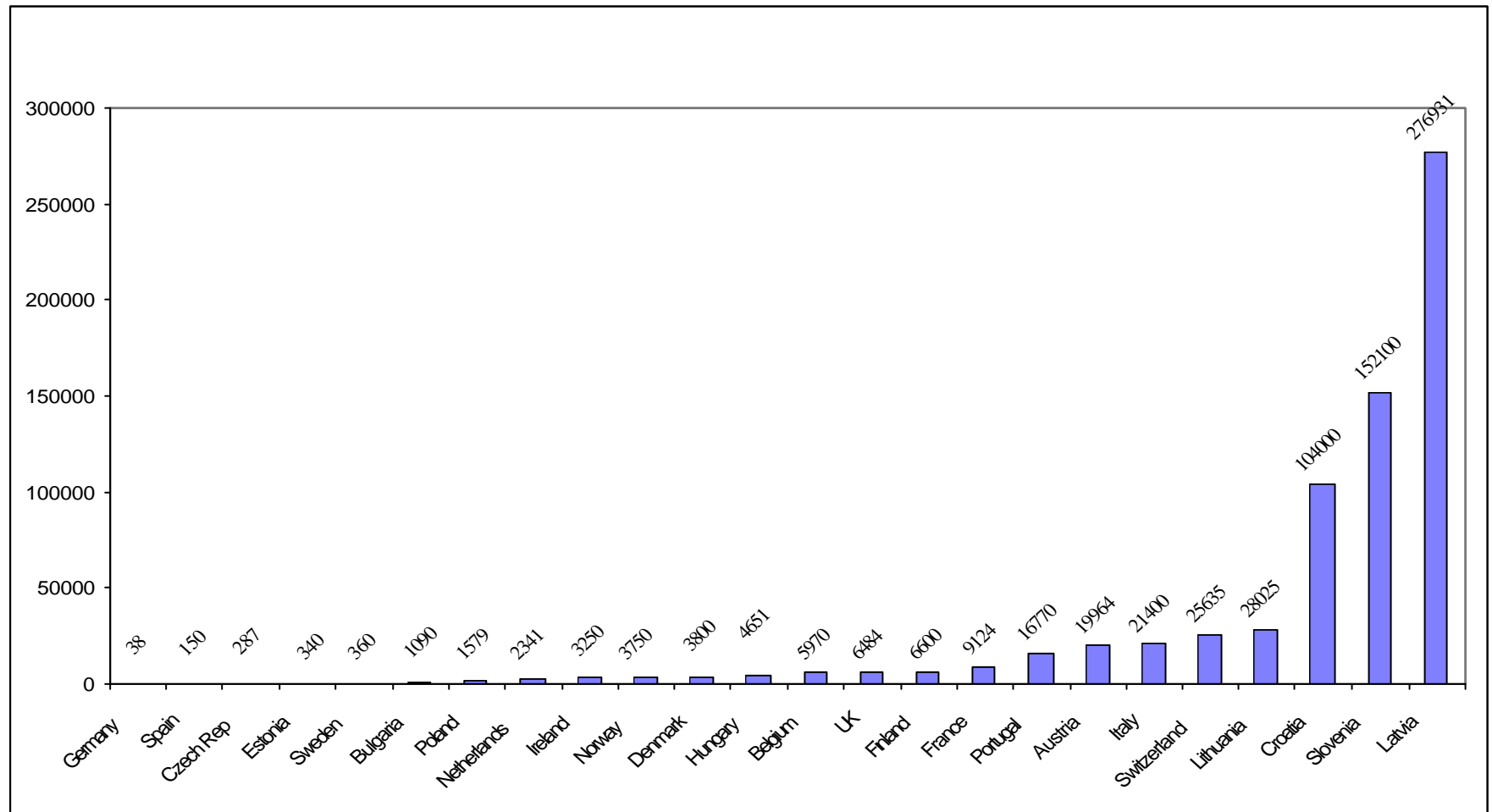
No. of Implementations, by Country



Implementation % of Sat Decisions & of all Decisions



Which Is Facilitating Fee Harmonization in Europe*

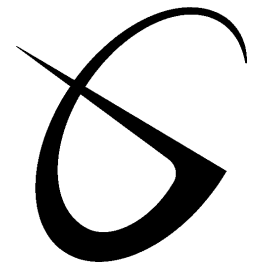


26 Source: ERC

*Assuming 100+ Terminals,
150 kHz Bandwidth



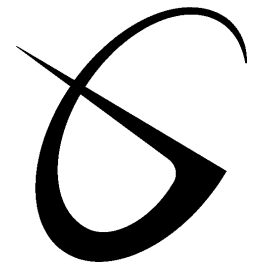
2. TRANSPARENCY AND ONE STOP SHOPS



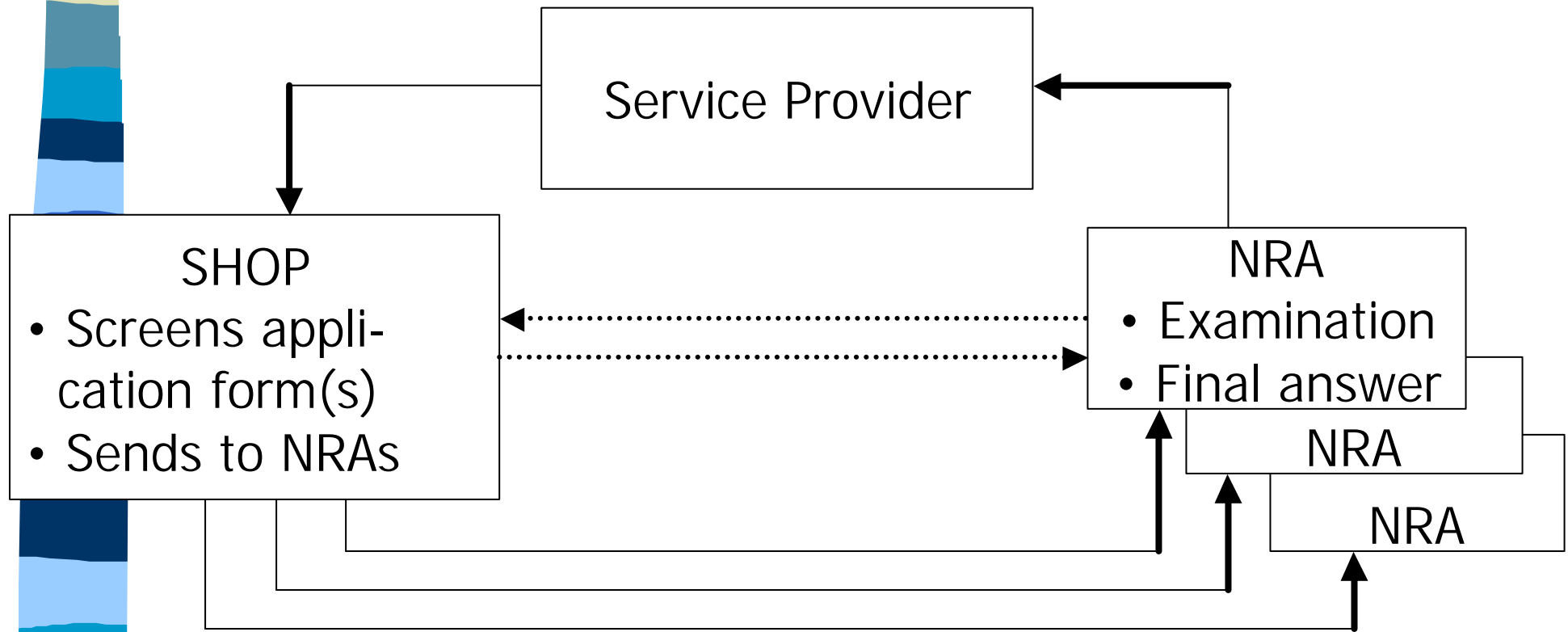


The Regional 'One Stop Shop' Concept

- Uphold National Sovereignty While:
- Providing Access to Licensing Data
- For Each Country in a Region
- Via One URL



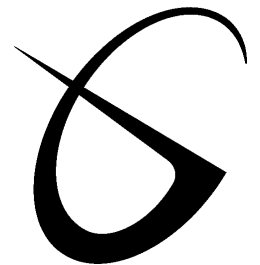
The OSS Procedure



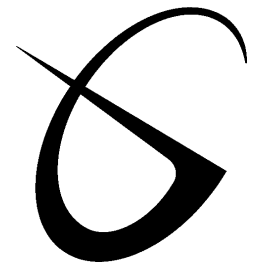
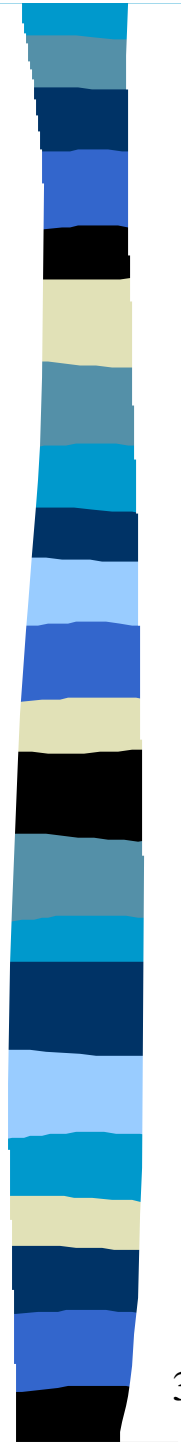


WWW.ETO.DK

- 17 Countries Provided Reg. Data
- 13 Countries Implemented CAF
- 7 Countries Implemented Elec. CAF
- Getting 1,800 Hits Per Month



3. TYPE APPROVALS

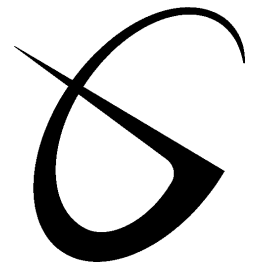




Eliminating Unnecessary Regs

- Radio & Telecommunication Terminal Directive (R&TTE)
- Now Implemented in the EU
- Ends the 'Type Approval' Process
- Manufacturer Declares Conformity

4. Improved Access to Satellite Capacity



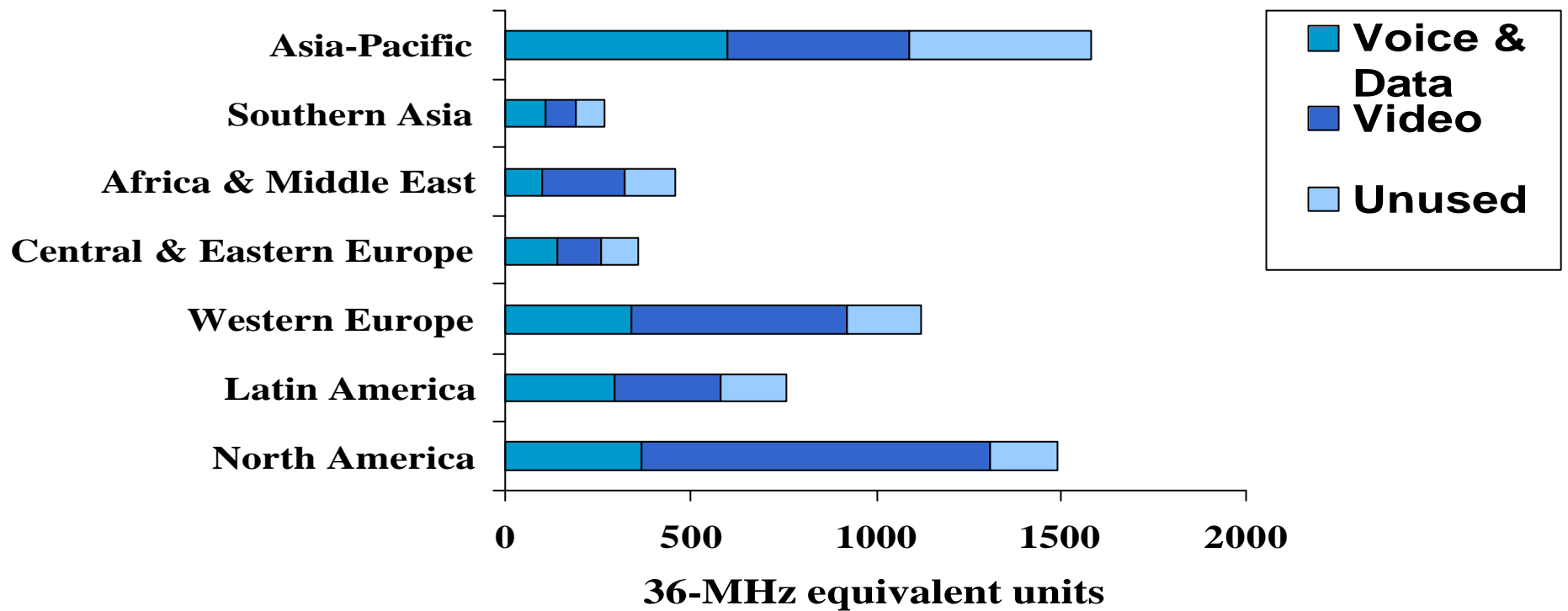


Open Skies

- Flexibility to select from all resources
- Permits satellite operators to compete
- Results in more content options and lower prices for customers.

- Any person or entity authorized to operate an earth station could be allowed to directly access all ITU-coordinated satellite systems.

Transponder Utilization, '99-00



35 Source: Euroconsult



Broadband Network Solutions

Sector	Sites	Service
Peugeot	4,200 (Eur.)	2-Way Data
Argyle	1,300 (Eur.)	2-Way Data
Lottery	3,000 (U.K.+)	2-Way Data
Reuters	5,000 (Eur.+)	1-Way Data
VISA	500 (Eur.+)	2-Way Data
WEAT	1,200 (Ger.+)	2-Way Data
UN-NTBTO	~1,000 (Eur.+)	2-Way Data

Growth of VSAT Industry in Europe

- From 2nd Lowest VSAT Use...
- To 2nd Highest VSAT Use
- In Just Five Years

