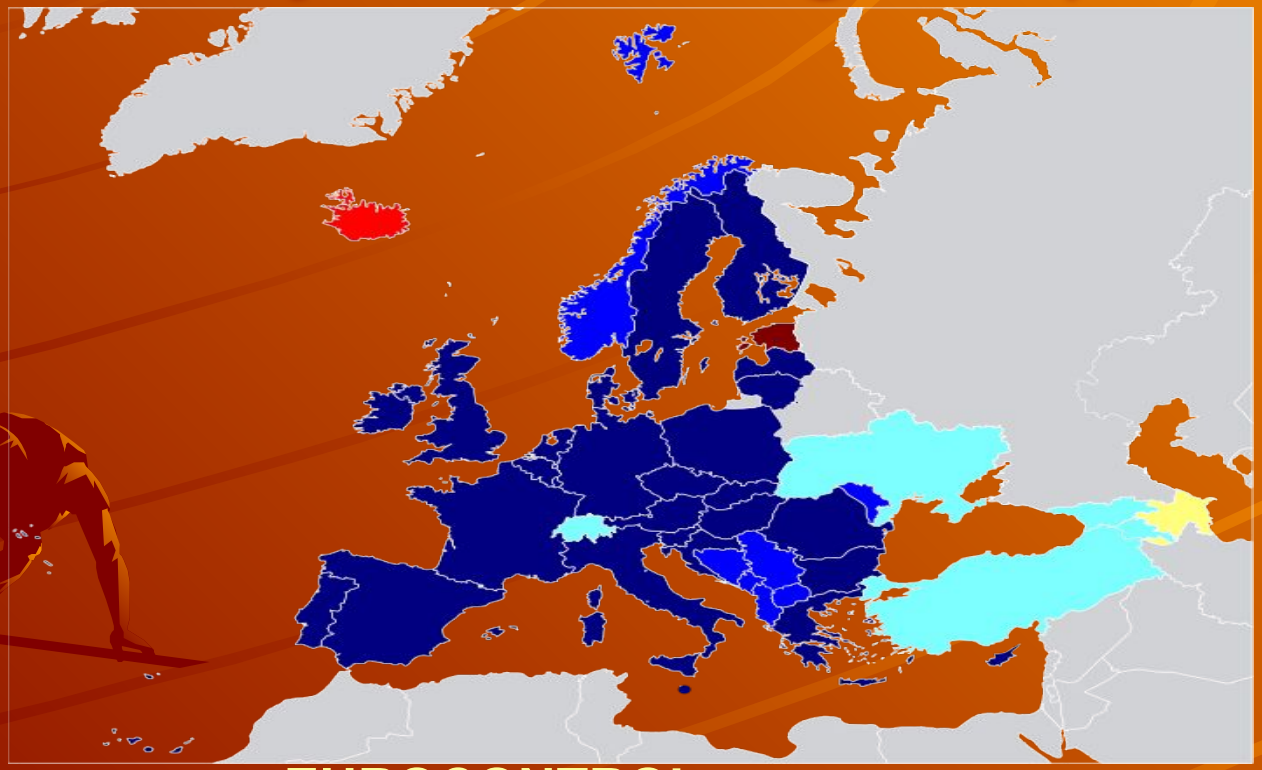
National Aviation Agency

Module 1 Topic 3

UKRAINE IS EU NEIGHBOUR STATE

The 1 of May 2004 Ukraine became 33-d EUROCONTROL member state

EUROCONTROL (European organization for the Safety of Air Navigation)



EUROCONTROL:
Member States 40
Service Providers (ANSP) 40
Area Control Centres (ACC) 68
Sectors at full capacity 670

Member flags and adhesion dates

EUROCONTROL – New Structure

SINGLE SKY

support for rule-making and regulation in European aviation

NETWORK MANAGEMENT

developing system-wide functions for the European ATM network

SESAR(Single European Sky ATM Research)

building the pan-European air traffic management network

Route Charges

Maastricht Upper Air Centre

Corporate

Keep the Agency together as a family of activities, fully transversal, and with a single Agency Business Planning

INTERNATIONAL MEMBERSHIP

Ukraine is a Member of the following international organisations in the field of ATM:

Organisation		Since
ECAC	✓	15.12.1999
EUROCONTROL	✓	01.05.2004 *
European Union		No
European Common Aviation Area		No**
EASA		No
ICAO	✓	09.09.1992
JAA		20.12.2001***
NATO		No

ATM Today
Air Transport – Air Navigation - Europe

ICAO: The contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory.

Towers 430
Approach units 220

Average: 10 sectors per ACC
Total revenue: B€8/year

Air Traffic Controllers :**16.000**
Support staff : **40.000**
Employees : **56.000**

ATM Today
Air Transport – Airlines in Europe

Average distance **840 km**
Average duration **1h30m**

~30.000 flights per day
10.000.000 flights per year

Load factor
(fill rate)
75 %

740 M pass / year
700.000 employees
Total revenue - B€100/year

ATM Today
Air Transport – Airports in Europe

2.000 airports **35 airports = 50 % flights**

most common flight : 400 km

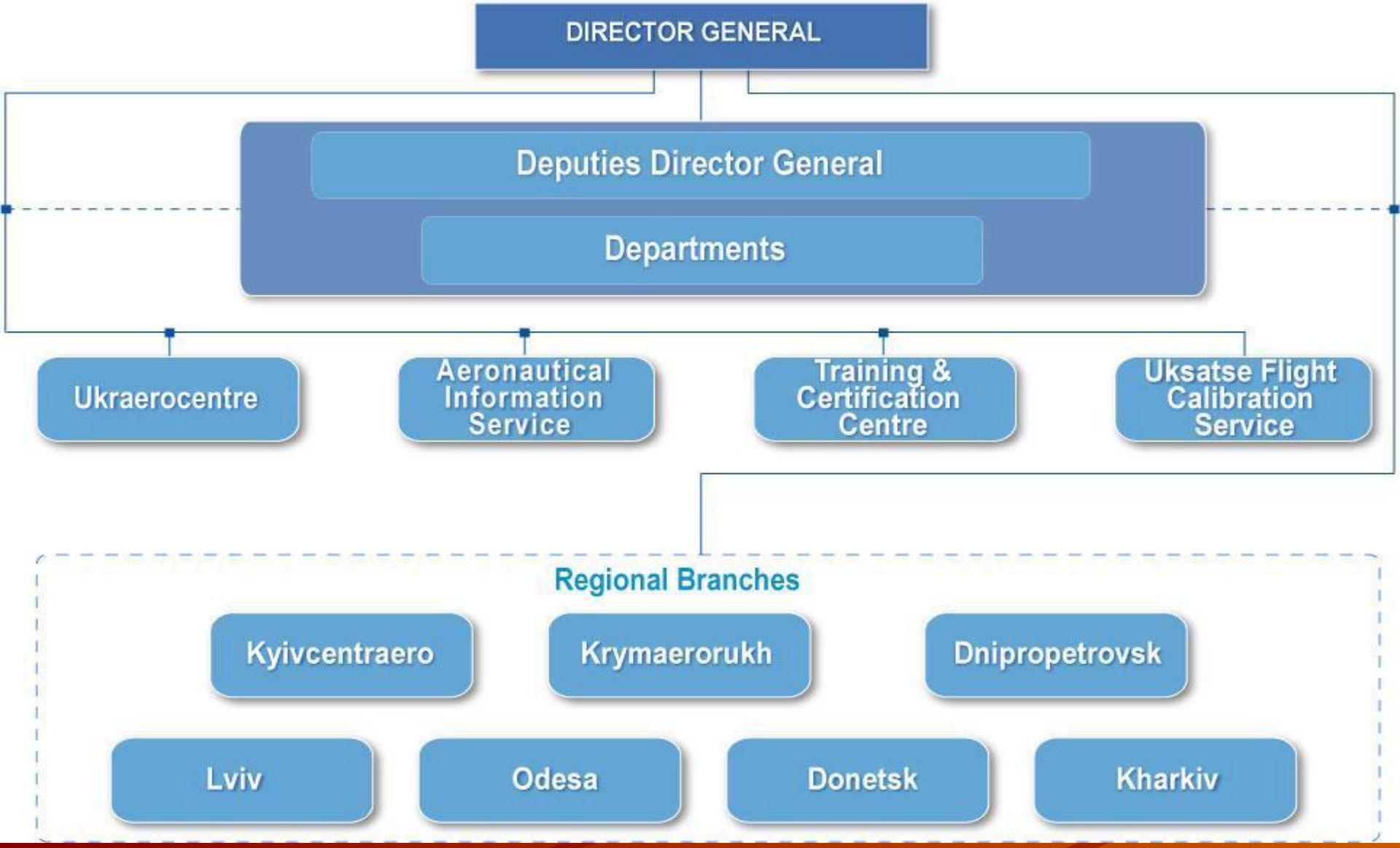
18.000.000 movements/year

Revenue: **B€22/year** **Aeronautical - B€11/year**

135.000 employees **Non-aeronautical - B€11/year**

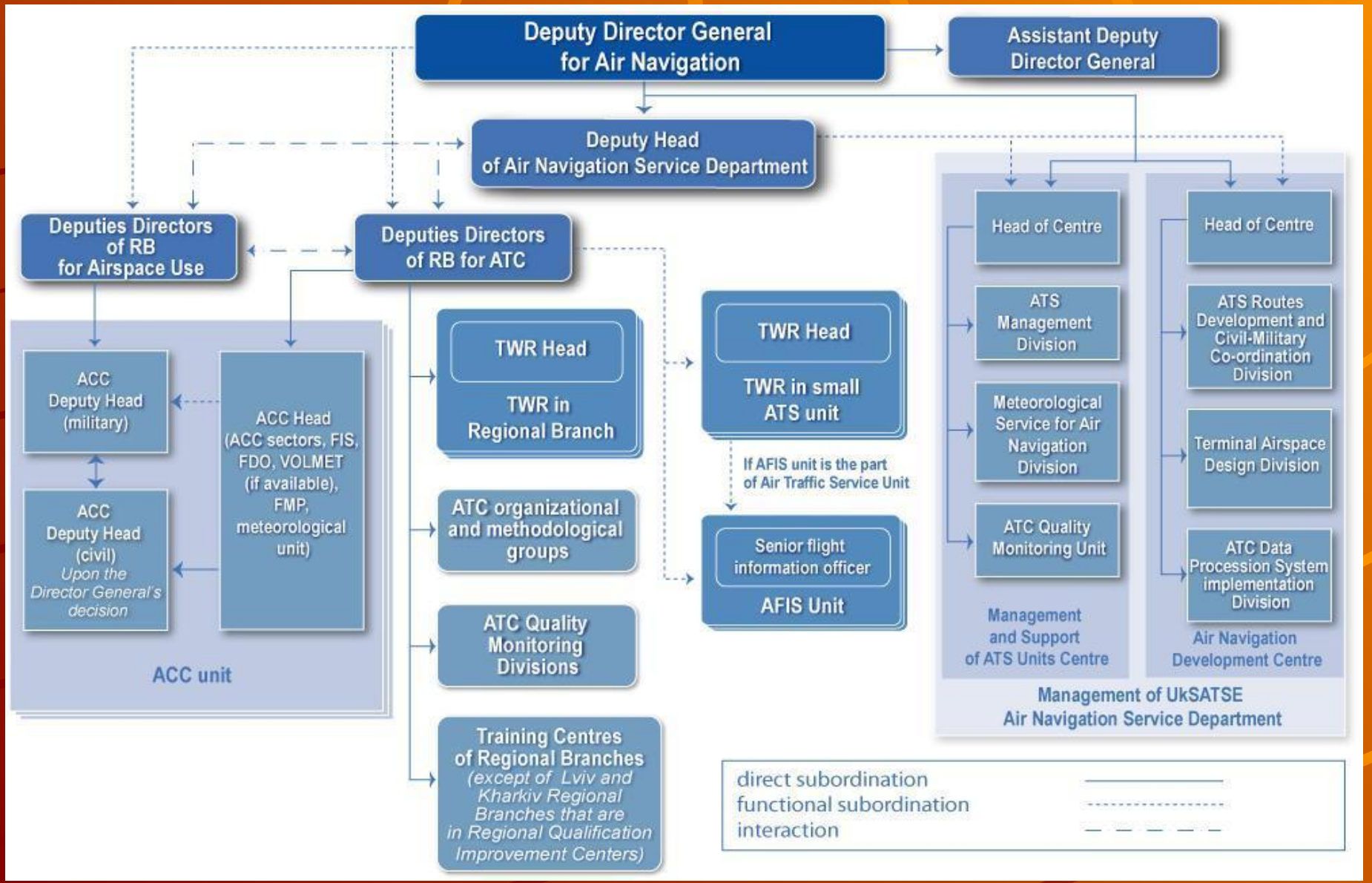
HIERARCHY OF LEGISLATION

UkSATCE


DIRECTOR GENERAL
Deputies Director General
Departments
Ukraerocentre
Aeronautical Information Service
Training & Certification Centre
Uksatse Flight Calibration Service
Regional Branches
Kyivcentraero
Krymaerorukh
Dnipropetrovsk
Lviv
Odesa
Donetsk
Kharkiv

- Ukrainian airspace and airspace over the high seas where the air traffic services are delegated to Ukraine
- by international agreements, consists of the following structural elements:
- 5 Flight Information Regions (Dnipropetrovs'k FIR, Kyiv FIR, L'viv FIR, Odesa FIR and
- Simferopol' FIR);
- 23 CTA Sectors;
- 23 TMAs which include 3 military TMAs;
- 46 Control Zones (CTRs) which include 20 military CTRs;
- 10 Aerodrome Flight Information Zones (AFIZs);
- Aerodrome Traffic Zones (ATZs) – usually set up for each touchdown pad;
- 187 ATS routes and routes set up for crossing the state border of Ukraine. Total ATS routes
- extension below FL 275 is 38 317 km, FL 275 and above – 45 821 km;
- 30 Prohibited Areas;
- 207 Restricted Areas;
- 76 Danger Areas;
- 186 Training Areas, 54 of them are stated as temporary airspace reservation;
- Special rules zone airspace – set up along the state border.

The organisation chart of Air Navigation Service Department of UkSATSE

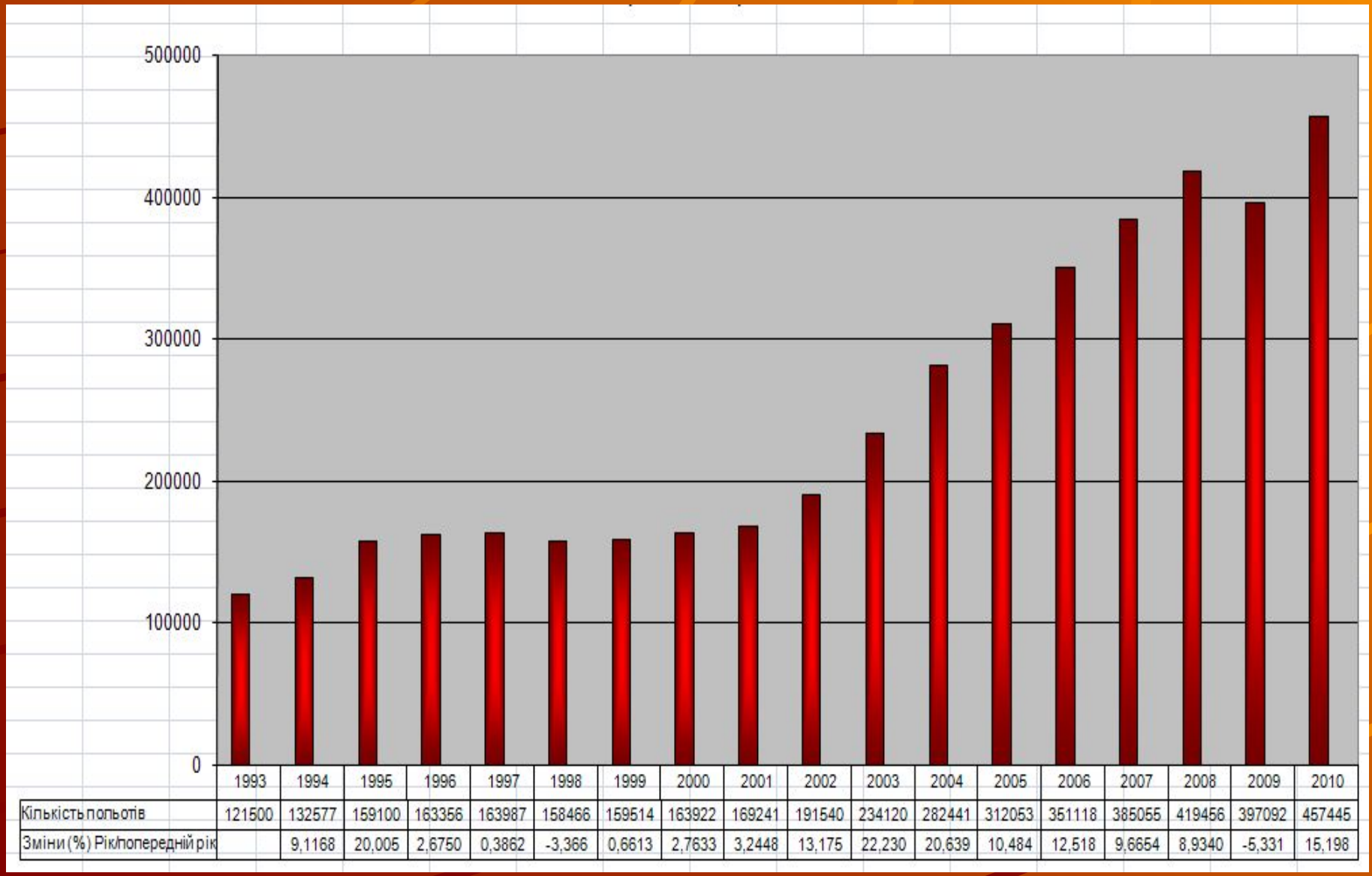


The Regulatory Body in the field of Civil Aviation in Ukraine is the State Aviation Administration of Ukraine (SAA), established by the Decree of the President of Ukraine No 398 of 06.04.2011.

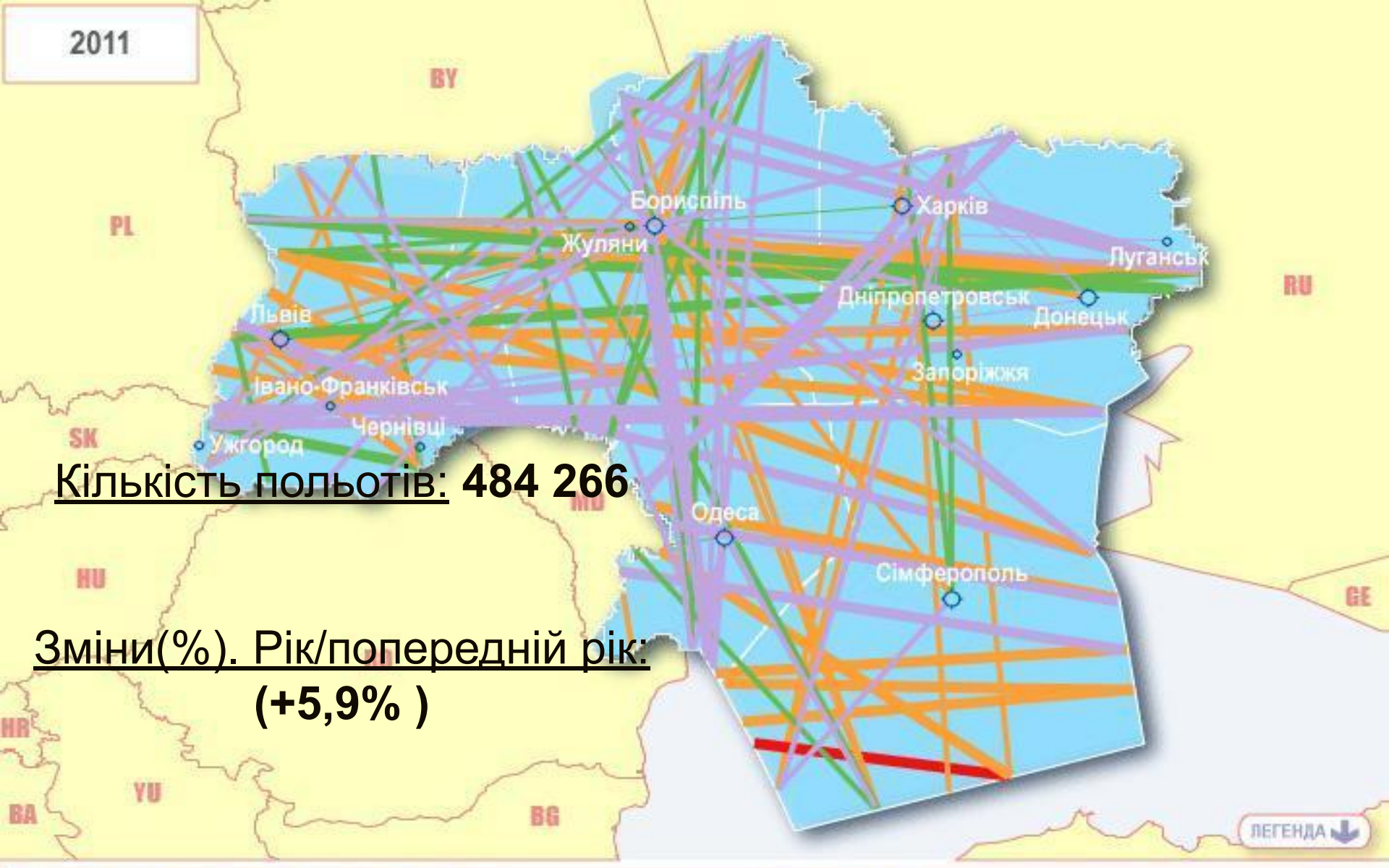
SAA is a central executive body, whose activity is directed and coordinated by the Cabinet of Ministers of Ukraine via the Vice-Prime-Minister – Minister of Infrastructure of Ukraine.

It is institutionally separated from the Ukrainian State Air Traffic Service Enterprise (UkSATSE).

EVOLUTION OF TRAFFIC IN UKRAINE



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Кількість польотів	121500	132577	159100	163356	163987	158466	159514	163922	169241	191540	234120	282441	312053	351118	385055	419456	397092	457445
Зміни (%) Рік/попередній рік		9,1168	20,005	2,6750	0,3862	-3,366	0,6613	2,7633	3,2448	13,175	22,230	20,639	10,484	12,518	9,6654	8,9340	-5,331	15,198



Кількість польотів: **484 266**

Зміни(%). Рік/попередній рік:

(+5,9%)

Середня кількість польотів за добу:
- більше 50
- до 50
- до 10
- до 5

Середня максимальна злітна вага ПС:
- більше 150 т.
- до 150 т.
- до 50 т.

AIRPORTS

The airport network in Ukraine comprises of 46 certified aerodromes of which 29 have airport infrastructure.

Kyiv Boryspil International Airport is the main international airport in Ukraine and accounts for over 45% of all IFR operations at Ukrainian aerodromes.

Aerodromes Simferopol', Odesa, Kyiv Zhuliany, Donetsk, Dnipropetrovs'k, and L'viv are strategic. Other aerodromes are domestic. In accordance with international standards, the service zone of strategic aerodromes is within 200-250km.

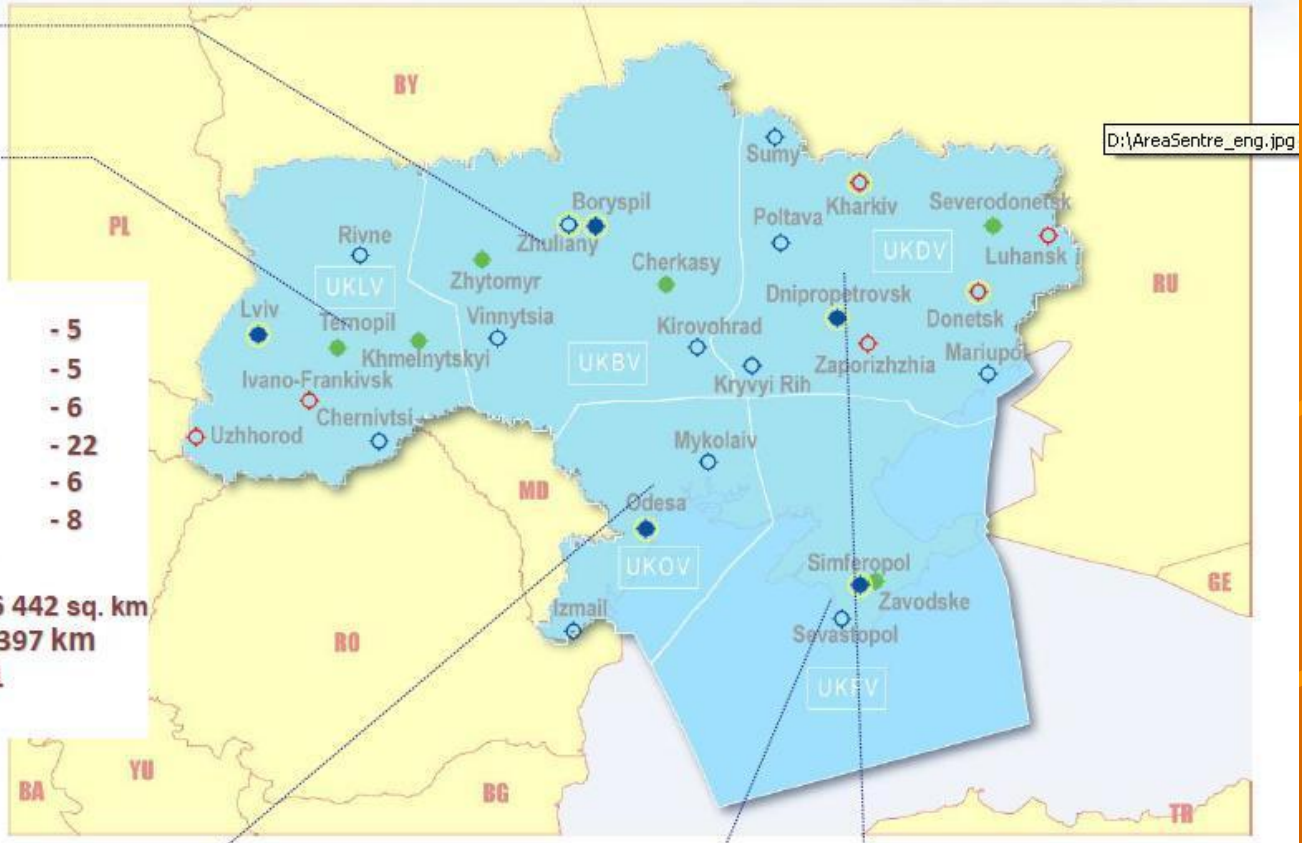
GEOGRAPHICAL DESCRIPTION OF FIR(s)

The Ukrainian ATS Airspace is surrounded by 10 FIRs of 9 different States namely, Minsk FIR (Belarus), Moscow FIR and Rostov–na-Donu FIR (Russia), Ankara FIR (Turkey), Varna FIR (Bulgaria), Bucharest FIR (Romania), Chisinau FIR (Moldova), Budapest FIR (Hungary), Bratislava FIR (Slovak Republic) and Warszawa FIR (Poland). Two of the surrounding States, Russia and Belarus, are non-ECAC States.

Airspace and ATM Units of Ukraine

Kyiv FIR
181 399 sq.km

Lviv FIR
138 365 sq.km



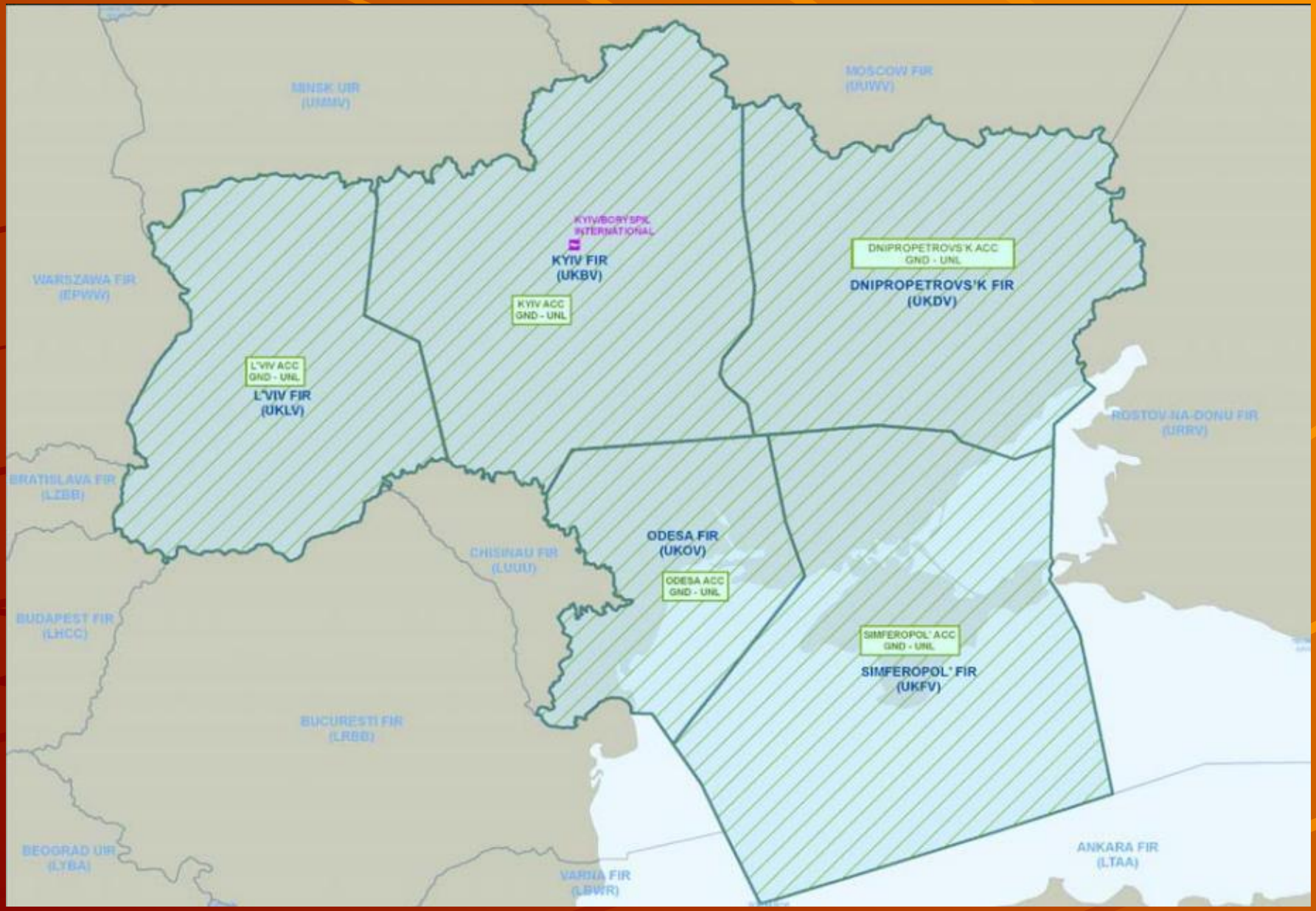
Total:

FIRs	- 5
ACC	- 5
APP	- 6
Tower	- 22
AFIS	- 6
Briefing offices	- 8
ARO	- 14
FIR total area	- 776 442 sq. km
Total length of routes	- 50 397 km
Total number of routes	- 171

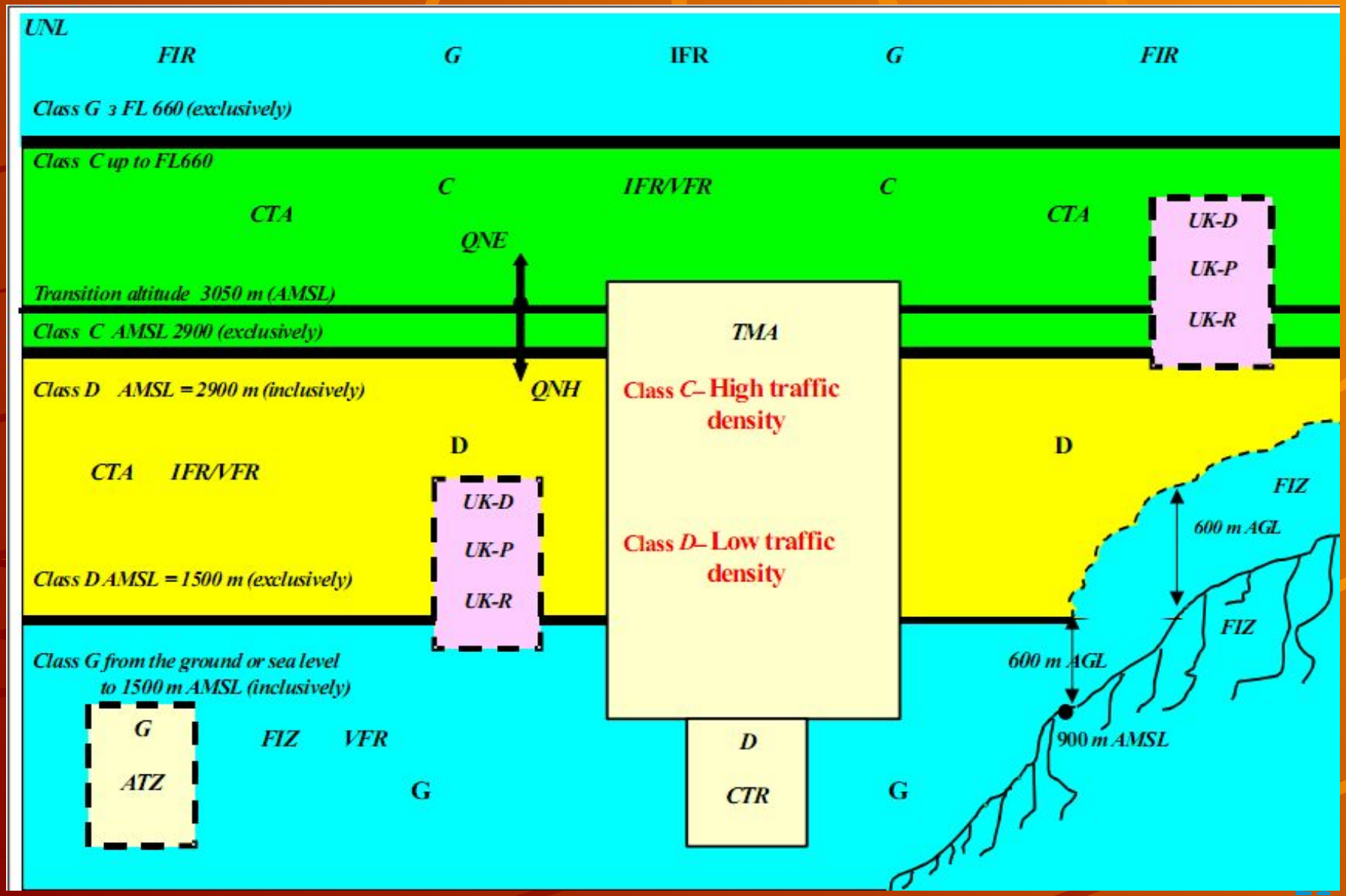
Odesa FIR
81 832 sq.km

Simferopol FIR
209 337 sq.km

Dnipropetrovsk FIR
165 509 sq.km


MINSK UIR
(UMMV)
MOSCOW FIR
(UUWV)
KYIV/BORYSPIL INTERNATIONAL
KYIV FIR
(UKBV)
KYIV ACC
GND - UNL
DNIPROPETROVS'K ACC
GND - UNL
DNIPROPETROVS'K FIR
(UKDV)
WARSZAWA FIR
(EPWW)
L'VIV ACC
GND - UNL
L'VIV FIR
(UKLV)
ROSTOV-NA-DONU FIR
(URRV)
BRATISLAVA FIR
(LZBB)
ODESA FIR
(UKOV)
ODESA ACC
GND - UNL
CHISINAU FIR
(LUUU)
BUDAPEST FIR
(LHCC)
SIMFEROPOL' ACC
GND - UNL
SIMFEROPOL' FIR
(UKFV)
BUCURESTI FIR
(LRBB)
BEOGRAD UIR
(LYBA)
VARNA FIR
(LBWR)
ANKARA FIR
(LTAA)

AIRSPACE CLASSIFICATION



ATC UNITS

ATC Unit	Number of sectors		Associated FIR(s)
	En-route	TMA	
Kyiv ACC	6	5	UKBV Kyiv FIR
Simferopol' ACC	5	2	UKFV Simferopol' FIR
Odesa ACC	3	2	UKOV Odesa FIR
L'viv ACC	4	1	UKLV L'viv FIR
Dnipropetrovs'k ACC	4	1	UKDV Dnipropetrovs'k FIR
Kharkiv APP		3	UKDV Dnipropetrovs'k FIR
Donets'k APP		2	UKDV Dnipropetrovs'k FIR

ATM SAFETY OVERSIGHT

5 - ACC
38 - ATS Units (TWR)
51 – Airport CNS Units
43 – MET Units
38 – ARO
1 - Aeronautical information Services (Briefing)

Total length of the international routes - 47 145 km
Total area of FIRs - 774 579 sq. km

AUTOMATED SYSTEMS OF ATM

Alenia-Marconi (Italy):

Kyiv ACC – 14.10.2000

Aerotekhnika (Ukraine):

Simferopol' ACC - 2007

L'viv ACC - 1998

Kharkiv ACC - 2000

Odesa ACC - 2000

Donetsk ACC - 2003

Indra Systemas (Spain):

Dnipropetrovsk ACC - 2007

UKRAINIAN AIRSPACE MANAGEMENT and PLANNING CENTRE

Since 2005 in UKRAEROCENTRE the Automated System of Planning and Control of Airspace Use and Regulation of Air traffic "ACC Center" is in operation.

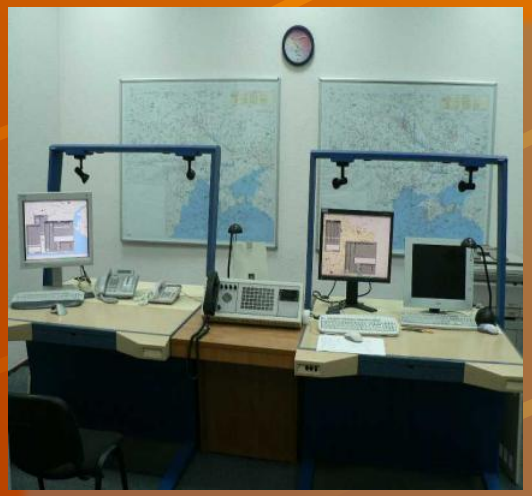
Goals which are solved by this system:

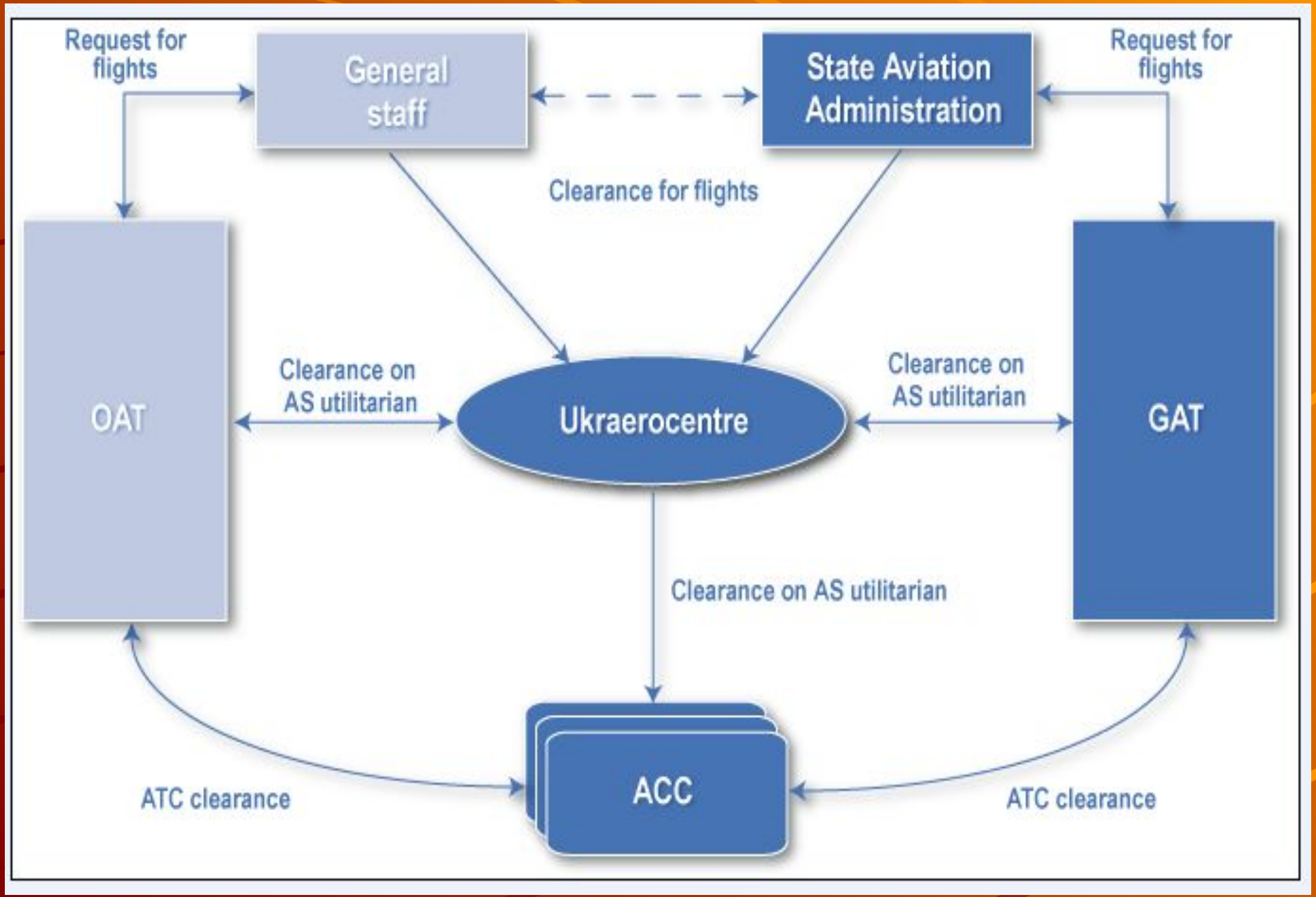
Receiving and processing of demands for airspace use.

Settlement of potential conflicts.

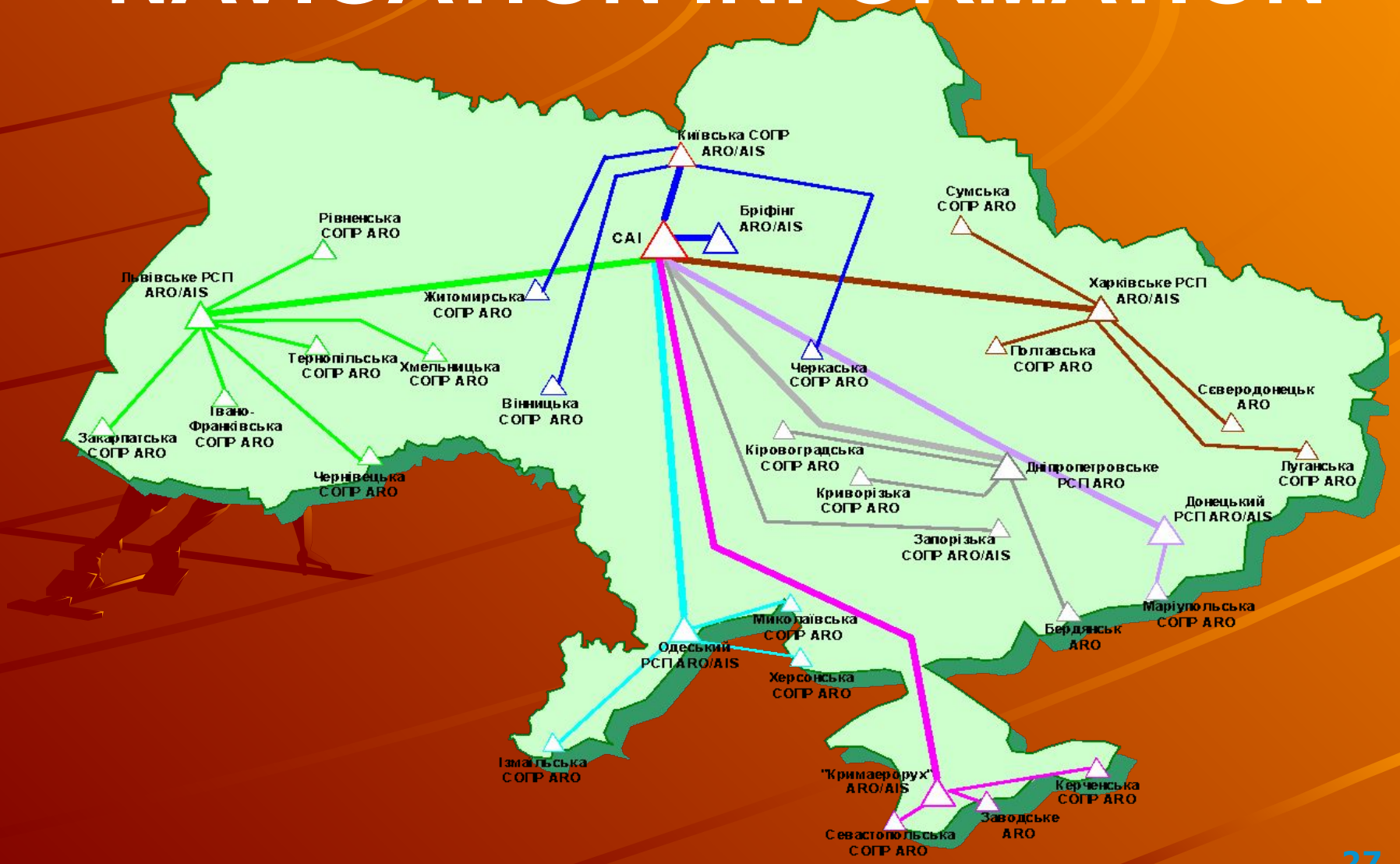
Formation and publication of plan of airspace use and corrections to it, interaction with Network Manager of EUROCONTROL.

Monitoring of realization the plan of airspace use




Request for flights
General staff
State Aviation Administration
Request for flights
Clearance for flights
OAT
Clearance on AS utilitarian
Ukraerocentre
Clearance on AS utilitarian
GAT
Clearance on AS utilitarian
ATC clearance
ACC
ATC clearance

DISTRIBUTION OF AIR NAVIGATION INFORMATION



AUTOMATED SYSTEMS DEVELOPMENT

ATM Systems Modernization

- SELEX Kyiv ACC 2011
- Indra Dnipropetrovsk' ACC 2011-2012
- Aerotekhnika Lviv ACC 2011-2012

ATM Systems Replacement

- Indra Donetsk ACC 2011
- Indra Kharkiv ACC 2011-2012

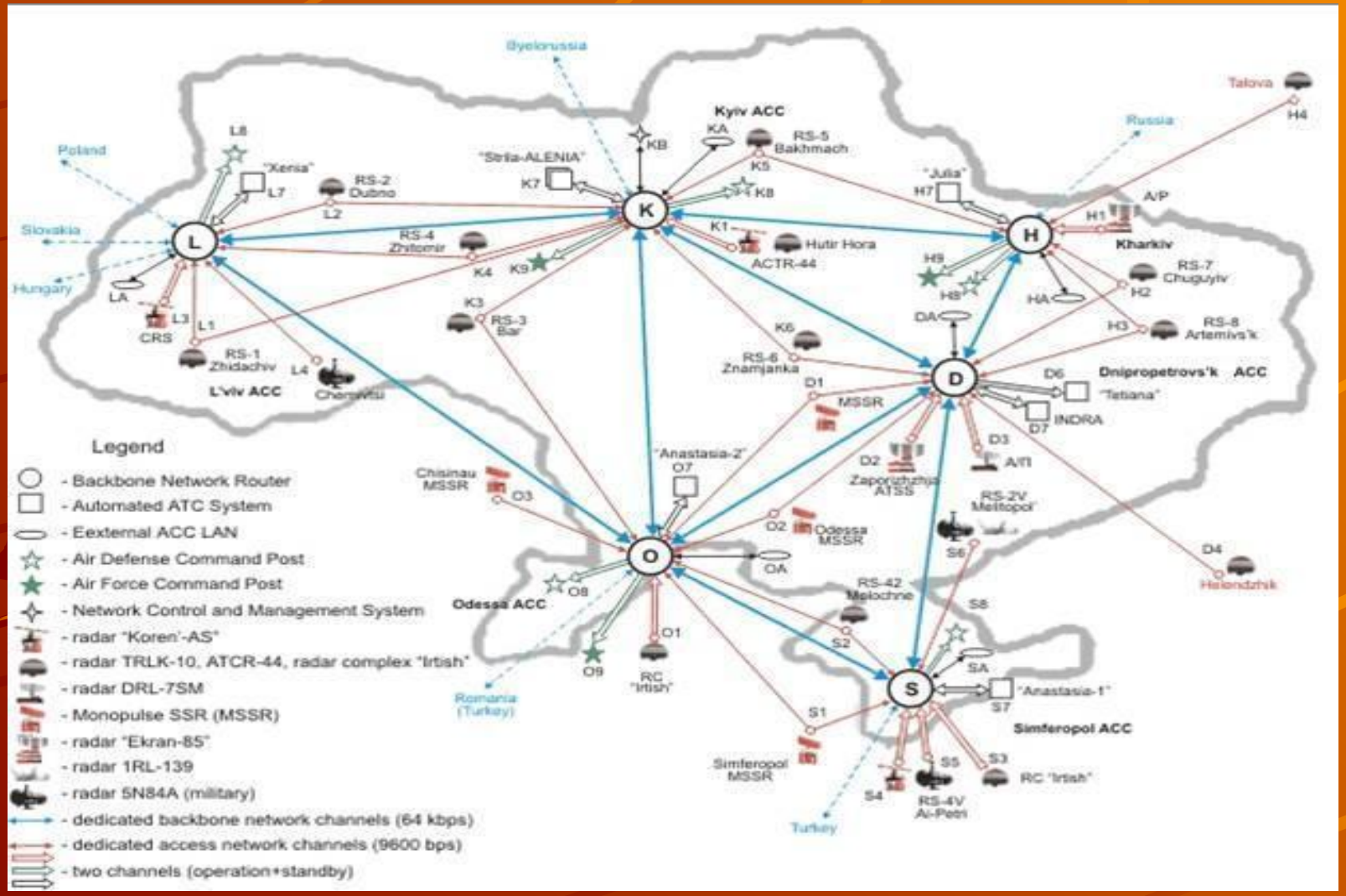
RADAR-TRACKING COVERAGE

Radar-tracking field of secondary route radars

In operation:

Route radars	- 14
Airdrome radars	- 18
Airdrome-route radars	- 2

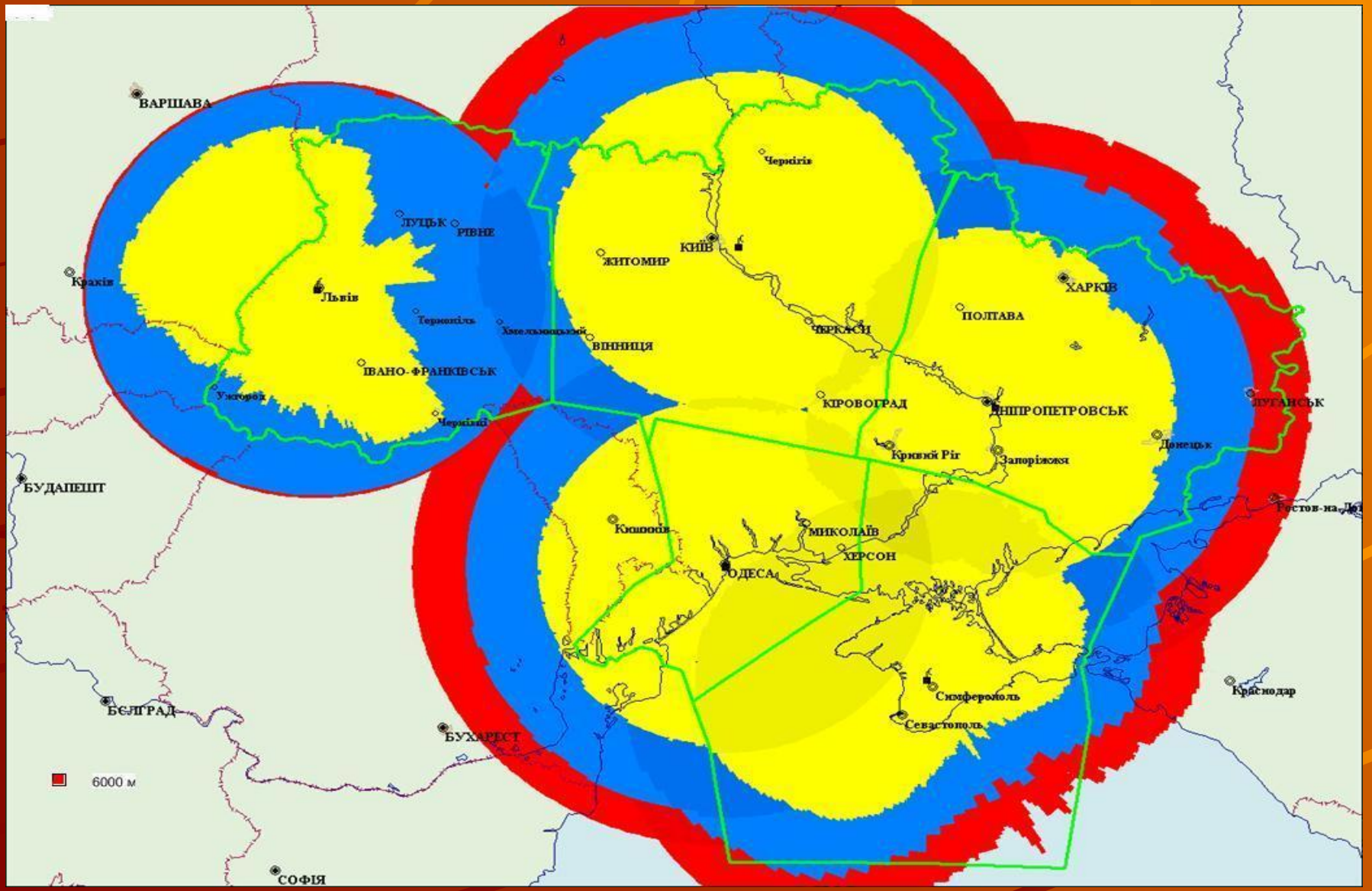
RADAR DATA EXCHANGE NETWORK



RADAR SYSTEMS DEVELOPMENT

Installation of MSSR with mode S (replacement of SSR "Koren' " - 5 units)
Modernization of 2 MSSR with mode S
Modernization of primary channel of route radar sets TRLK- 10

EXPECTED COVERAGE BY RADARS with mode S

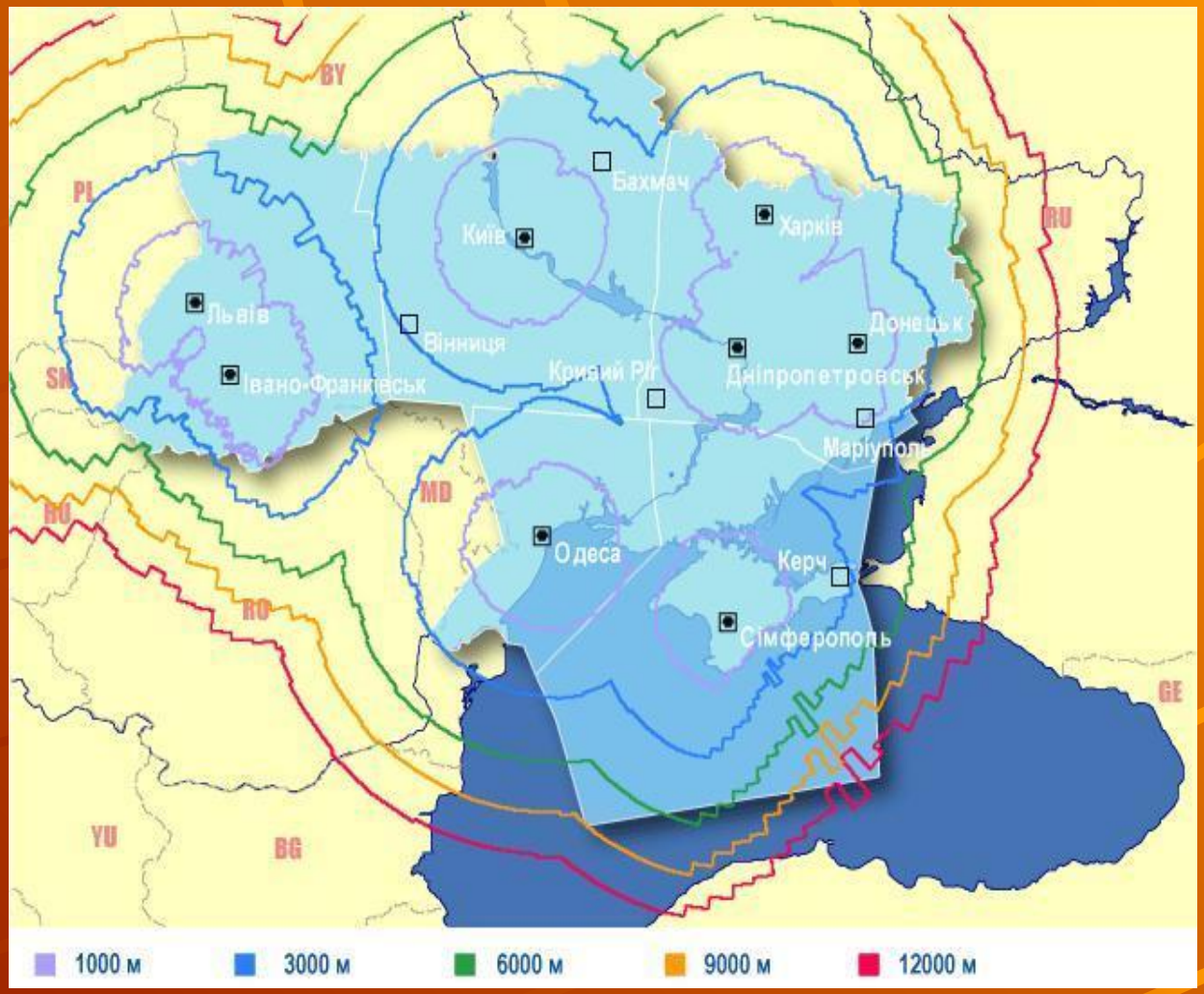


VOR and DME coverage

UkSATSE provides continuous navigating coverage and telecommunication VHF coverage in zone of responsibility

In operation:

- VOR/DME - 9
- DME - 8



Navigating coverage VOR/DME provides using RNAV

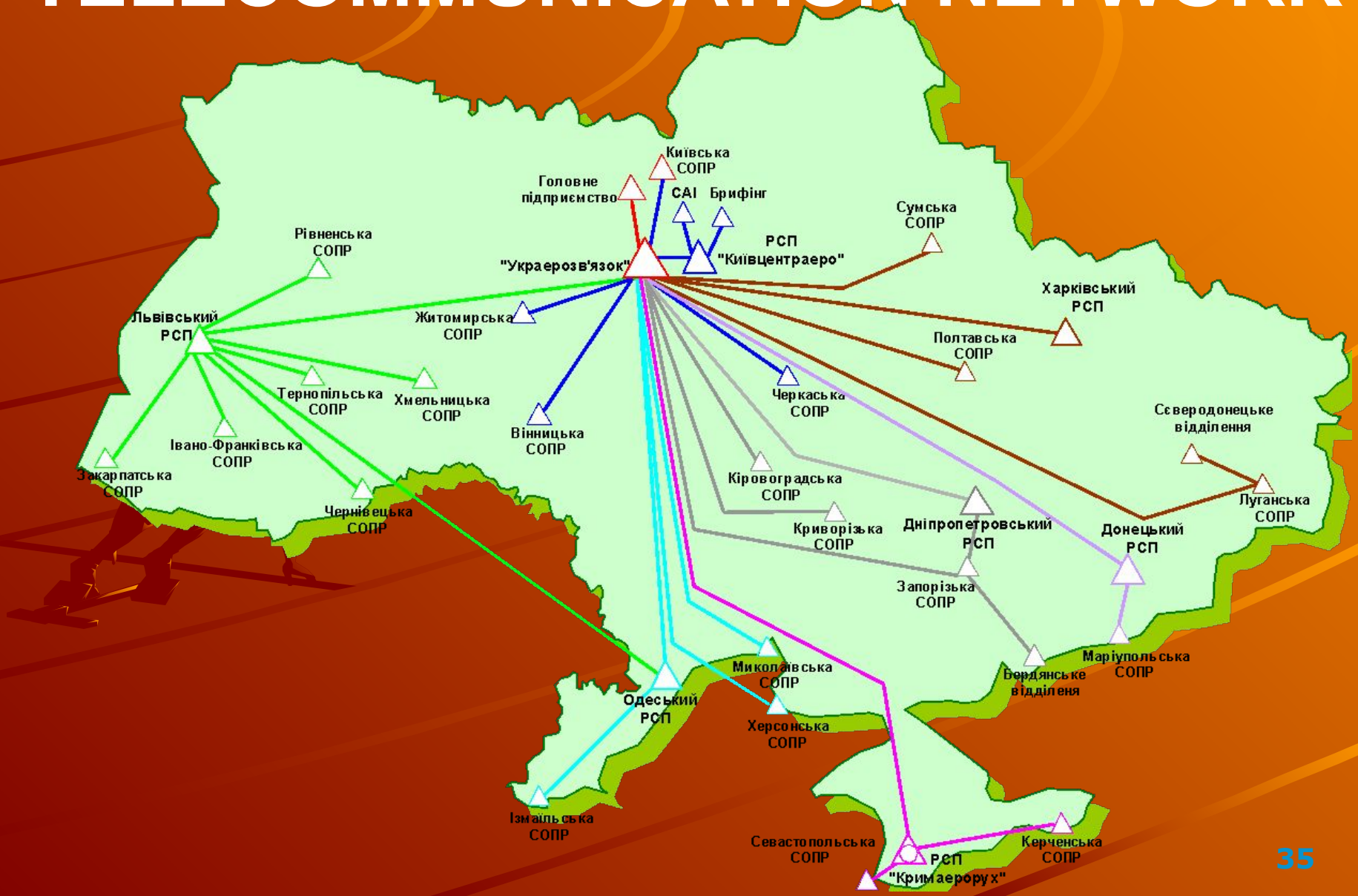
RADIO NAVIGATION SYSTEMS DEVELOPMENT

Creation of 4 new positions

- DVOR/DME 2 units - 2012 - 2014

- DME 2 units - 2012 - 2014

AERONAUTICAL FIXED TELECOMMUNICATION NETWORK

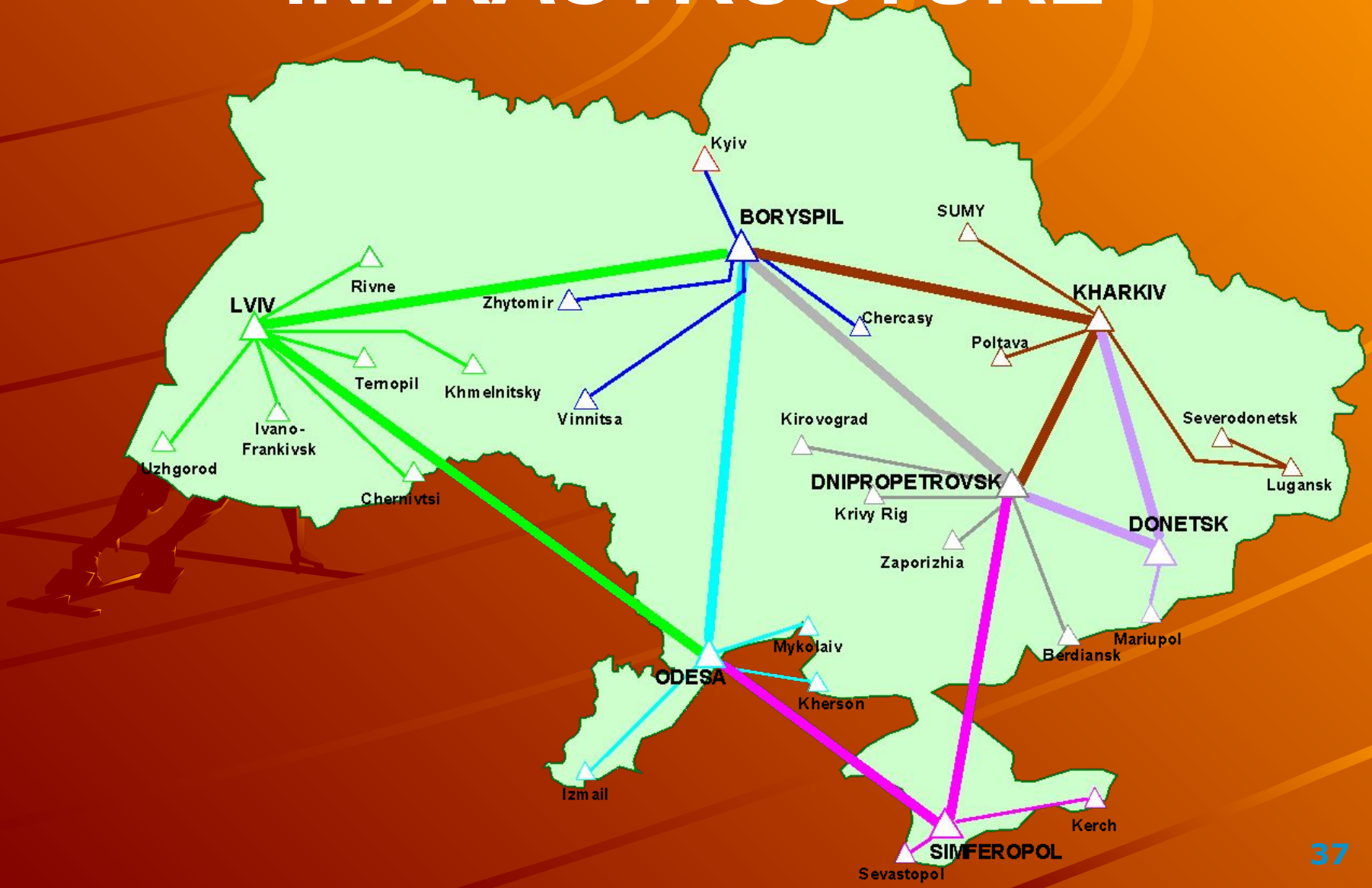


AVIATION TELECOMMUNICATION DEVELOPMENT

Replacement of VHF equipment for 330 channels of communication.
Installation of voice communication systems – 11 units - during 2011-2015.
Installation of Controller-Pilot Data Link Communication (CPDLC) – to 2018

TELECOMMUNICATION INFRASTRUCTURE

BTN IMPLEMENTATION STAGE 3 (2013-2014)



NATIONAL PROJECTS

The main projects currently ongoing and recently completed in Ukraine are depicted in the table below:

Name	Schedule	Description – Scope	Status	Link with ESSIP Obj.
CMASS	2011/2012	Upgrade of the Central Meteorological Air navigation Service System software and hardware and implementation of the MET component in the airport's briefings such as: Boryspil', Zhulyany (Kyiv), Odesa, L'viv, Donets'k, Simferopol', Dnipropetrovs'k, Kharkiv, Zaporizhzhia	The project has just started.	
BTN	2007/2011	The fixed ground communication infrastructure of UkSATSE' will be based on the Backbone Telecommunication Network (BTN) as a common unified IP-based transport environment to support exchanges of aviation-related data. The BTN nodes have been installed at all 7 UkSATSE's regional structural branches.	All 7 nodes have been deployed. They are connected to each other in a meshed topology by means of dedicated (non redundant) links. The second stage of the project has started to provide the improvement of redundancy of nodes and links. The third stage of project supposes the deployment of additional nodes in the regional ATC units in local airports, migration from leased line TDM technologies to broad band technologies all over Ukraine.	COM04 COM05 SUR03

NATIONAL PROJECTS

Mode S MSSRs	2011/2013	Five new stand-alone Mode S MSSRs are planning to be installed additionally to five existed Mode S MSSRs in order to provide Mode S duplicated coverage.	Contract has been signed.	SUR02
USENET	2010/2011	UkSATSE Surveillance Data Collection, Processing & Distribution Network (USENET) shall be based on the underlying transport infrastructure - UkSATSE's BTN. The USENET backbone topology lies down in full on the BTN's one.	It is expected that Call for Tender (CfT) procedure for establishing the USENET will be initiated after realisation of second stage of BTN project.	SUR03
Upgrade of radio equipment	2010/2013	The upgrade of radio equipment for Dnipropetrovs'k ACC, L'viv ACC, Kyiv ACC, Odessa ACC, Simferopol' Tower, Zhuliany (Kyiv) Tower, Donets'k APP/TWR centre consists of replacing of the obsolete equipment to the new one.	The radio equipment of first ACC (Simferopol') has been upgraded in 2008. Contract is in progress. It is expected that the radio equipment for Dnipropetrovs'k ACC will be upgraded in 2011. For other sites – 2011-2013	COM01
VCS	2010/2013	A modern digital voice communication systems has been installed in Boryspil' TWR, also in Simferopol' TWR, Donets'k TWR, Zhuliany (Kyiv) TWR, Kyiv ATC centre, Kharkiv ATC centre.	VCS for Boryspil' TWR has been put into operation in 2009 Other sites will be installed in 2011-2013. Contract is in progress.	COM06
ATC centres	2010/2014	The upgrade of ATM systems for L'viv ACC/APP/TWR, Kyiv ACC/APP/TWR, Donets'k APP/TWR, Kharkiv APP/TWR, Dnipropetrovs'k TWR, Odesa ACC/APP/TWR consists of changing obsolete equipment to the new one and functional extension.	The contracts for installation of ATC systems has been signed. Projects are in progress.	
TOWER	2010/2014	Building of new Towers: Donets'k TWR, Zhuliany (Kyiv) TWR, Kharkiv TWR,	The contracts for building of new Towers has been signed.	

NATIONAL PROJECTS

		Dnipropetrovs'k TWR, Borispil' TWR and reconstructing of L'viv TWR.	Projects are in progress.	
MLAT	2010/2013	Multilateration surveillance system for air traffic in CTR Boryspil', CTR Kyiv/Zhuliany and aerodrome surface movement zone at Boryspil' airport. UkSATSE intends to use MLAT data for Kyiv ATC centre and Boryspil' TWR. MLAT system is planning to be installed for Donets'k CTR.	The project has been started. Contract is in progress. The planned date of putting into operation is the end of 2011.	
Weather Radars	2010/2011	3 stand-alone Weather Radars are planning to be installed in Kharkiv, L'viv and Simferopol.	The project has been started. The planned date of putting into operation – end 2011.	
SMR	2011/2015	Installation of Surface Movement Radars for main Ukrainian airports: Borispsil', Donets'k, Simferopol', Kharkiv, Odesa, L'viv, Dnipropetrovs'k.	It is expected that Call for Tender (CfT) procedure for establishing of two SMRs for Borispil'.	
Upgrade of MSSRs	2011/2012	The upgrade of two MSSRs (without Mode S capability) in Simferopol and Dnipropetrovs'k in order to provide double Mode S coverage.	The project has been started.	SUR02
CCAMS	2010/2012	The upgrade of ATM systems for L'viv and Simferopol FIRs	The contract has been signed. The project is in progress.	

NATIONAL PROJECTS

P-RNAV	2010/2012	The upgrade of ATM systems for L'viv, Odesa and Simferopol FIRs	The contract has been signed. The project is in progress.	NAV03
MOBILE ATC TOWERs	2011	The implementing of the two mobile ATC Towers for the L'viv and Kharkiv aerodrome control units	The contract has been signed. The project is in progress.	
FPL 2012	2011/2012	The upgrade UkSATSE FDP systems in accordance to Amendment 1 to the PANS-ATM	The project has been started.	
SOFT WARE TOOL	2011/2012	Procurement of instrument procedure design software tool	The project has been started.	NAV03
Upgrade of Aerodrome Radars	2011/2015	New terminal PSR/MSSR's will be installed in 7 airports of Ukraine. UkSATSE intends to provide Mode S coverage in assistance with those radars.	The project has been started.	SUR02
GBAS	2013	It is planning to install 3 GBAS stations.	It is expected that Call for Tender (CfT) procedure for establishing of GBAS stations will be initiated in 2012.	NAV02
Rationalisation of navigation infrastructure	2011/2015	Installation of some NDBs, DVOR/DME and DME.	The project has been started.	NAV06
VSAT	2012/2015	Installation of new equipment in Dnipropetrovs'k and Odesa for modernization and extension of satellite communication system VSAT.	It is expected that Call for Tender (CfT) procedure will be initiated in 2012.	

Rules for Air Navigation Service Providers Certification

Effectiveness from September 2007

ANSP providing services:

- *ATS;*
- *CNS;*
- *AIS*

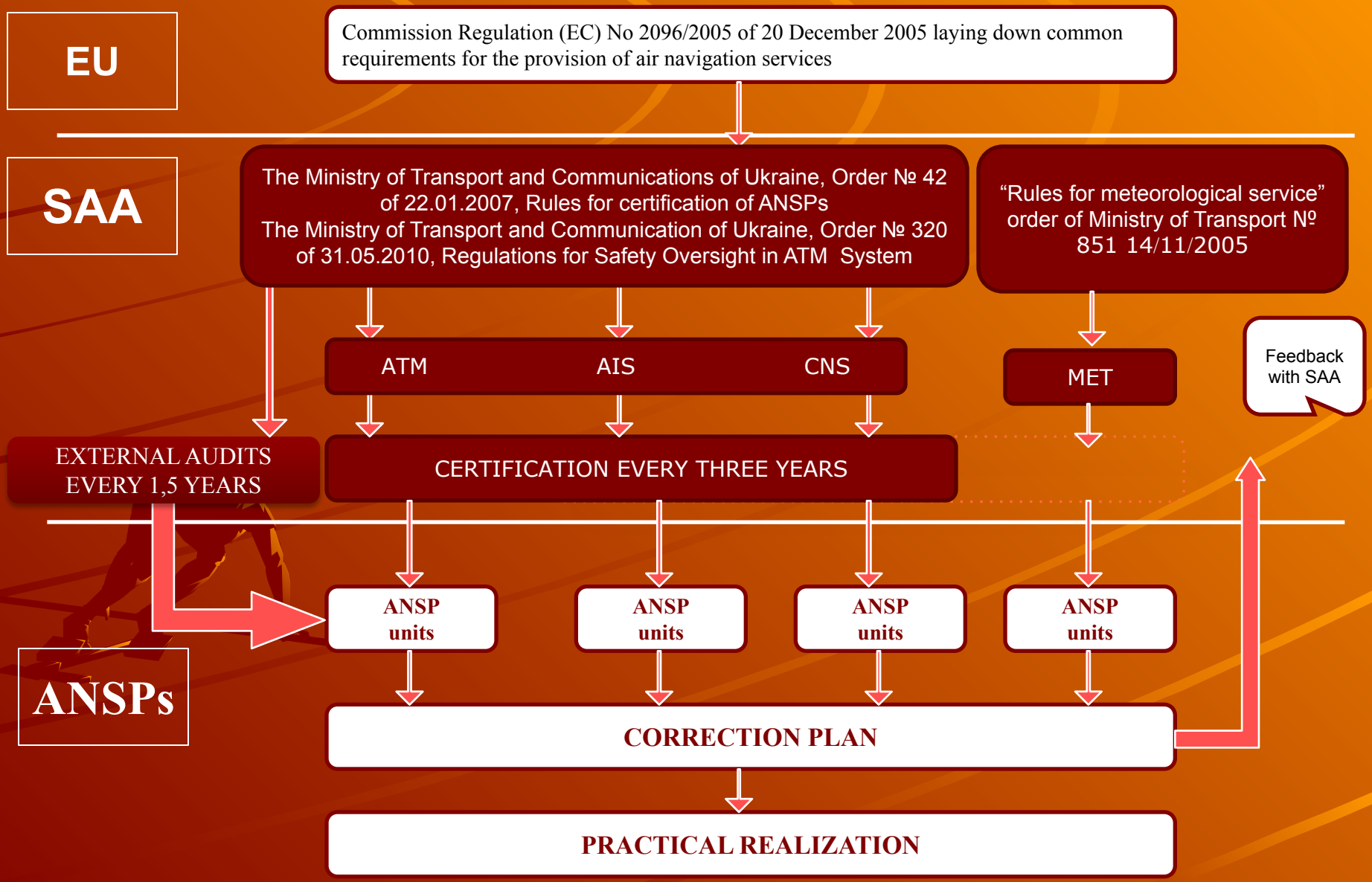
should have the corresponding operational certificate.

Periodicity of certification of 1 per 3 years

The main requirements to providers:

- **Technical and operational competence**
- **Organizational structure and management**
- **Safety and quality management**
- **Safety and Security**
- **Human resources**
- **Economic and financial capabilities**
- **Obligations and insurance aspects**
- **Requirements for the reporting**

SYSTEM OF CERTIFICATION ANSP



Implementation of ESARRs

The implementation of the ESARRs is progressing well, although not yet completed. In May 2010, the second edition of the safety oversight related regulation was approved. Some amendments were approved to the ANSP certification processes making it more flexible for all parties – REG and ANSP's.

In October 2010, the new edition of the "ATM Safety Management Manual of UkSATSE" was issued and a new safety management related training package was developed.

The legal basis from SAA side is fully in place for ESARRs 1-4 and 6. Complementary rules for ESARR 5 are still being drafted and foreseen to be ready by end 2011.

Decree of the Cabinet of Ministers of Ukraine № 44 dated 13/01/2010 was approved (the State Air Navigation Development Programme 2010-2014).

RESUME

1. Ukraine develops its air navigation system.
2. The legislative background for development of national air navigation system according to the European requirements, in particular concerning financial maintenance.
3. We intend to continue our movement to full integration into the European aviation community.
4. Therefore right now we extremely need a support from the European aviation community for maintenance of effective and timely development of our air navigation system according to SESAR programs and jointless maintenance of our system with the European systems.

Thanks for your attention!