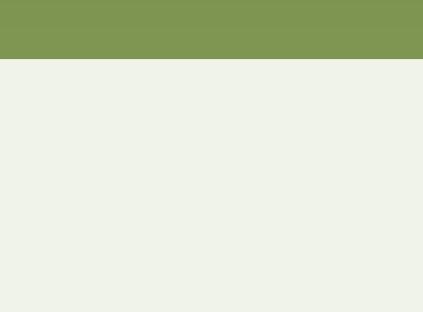


# Dr. Adrov Victor Dr. Shirshov Sergey Potapov Sergey

# INDUSTRIAL PRODUCTION ORGANIZATION **GEOSPATIAL INFORMATION** USING "PHOTOMOD" SOFTWARE







# THE MAIN REQUESTS FOR THE ESTABLISHMENT AND DEVELOPMENT

## **GROUND COMPLEX RECEIVE** DATA

• DOMESTIC ORBITAL GROUP INCREASING

•TIME WAITING SPENT FOR PHYSICAL DELIVER OF REMOTE SENSING DATA -**UP TO 20% OF THE TOTAL ORDER** PERIOD

•COMMERCIAL SUPPLIERS HIGH COSTS

•ON-LINE ACCESS TO THE MOST TIMELY RUSSIAN SATELLITE IMAGERY

•THE ATTRACTIVENESS INCREASING OF PRODUCTS BY REDUCING NET COST AND PRICE



# AUTOMATIC PRODUCTION LINES

# **BACKGROUND TO THE DEVELOPMENT**

- •THE NEED TO INCREASING THE **PRODUCTION OF GEOSPATIAL** INFORMATION
  - •LABOR RESOURCE EFFICIENCY **REDUCING AND INCREASING THE** NUMBER OF WORKBENCH
  - •THE PORTION OF PERSONNEL COSTS IN THE NET COST STRUCTURE - 30% **EXPECTED RESULTS**
  - •GEOINFORMATION RESOURCE **PRODUCTION ACCELERATION**
  - REDUCING THE RISK OF HUMAN FACTOR IN PRODUCTION
  - •THE PRODUCT INCREASING ATTRACTIVENESS BY REDUCING NET COST AND PRICE

•INFORMATION SYSTEMS PROGRESS

**GEO-PRODUCTS CUSTOMERS** 

•INFORMATION EXCHANGE ENTITY REMOTENESS

•ACCESS TO GLOBAL DATA IN NEAR-**REAL TIME** 

•STANDARDIZED INTERACTION OF THE SYSTEM PARTICIPANTS

•HIGH-SPEED DATA COMMUNICATION **OVER DEPARTMENTAL NETWORK BROADBAND LINKS** 

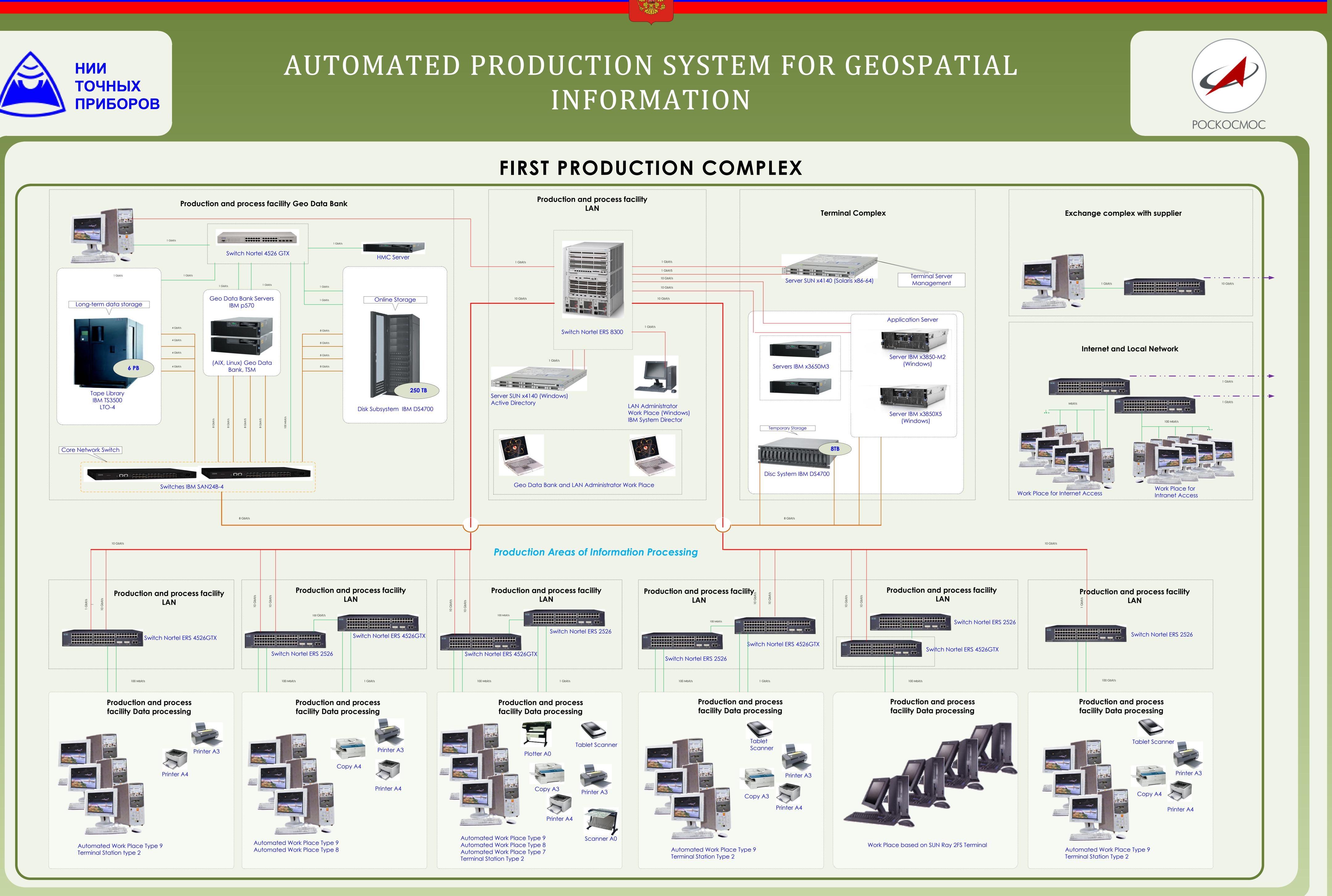


# •LOW EFFICIENCY OF INTERACTION WITH

# ENSURE CONSUMER ACCESS TO RESOURCES



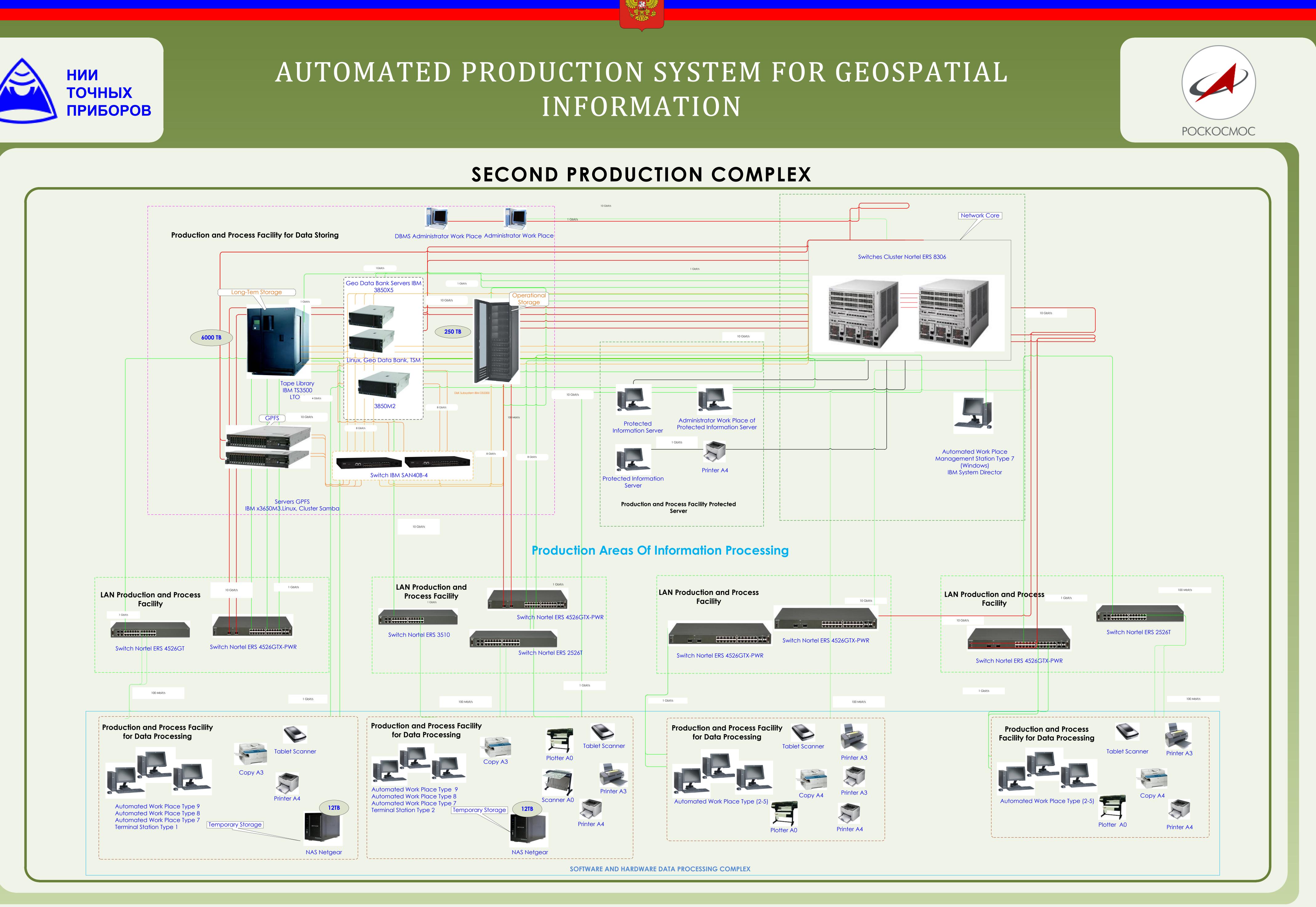








# INFORMATION







## **OPERATIONAL DATA STORAGE**

# Servers general characteristics:

## **DS5300**

**8 GB Cache Memory** 

EXP5000 16 HDD\*300 Gb

EXP5060 60 HDD\* 2 Tb

Data Storage size 250 Tb

# INDUSTRIAL POWERS AND DATA SERVERS HARDWARE FOR GEOSPATIAL INFORMATION CREATING

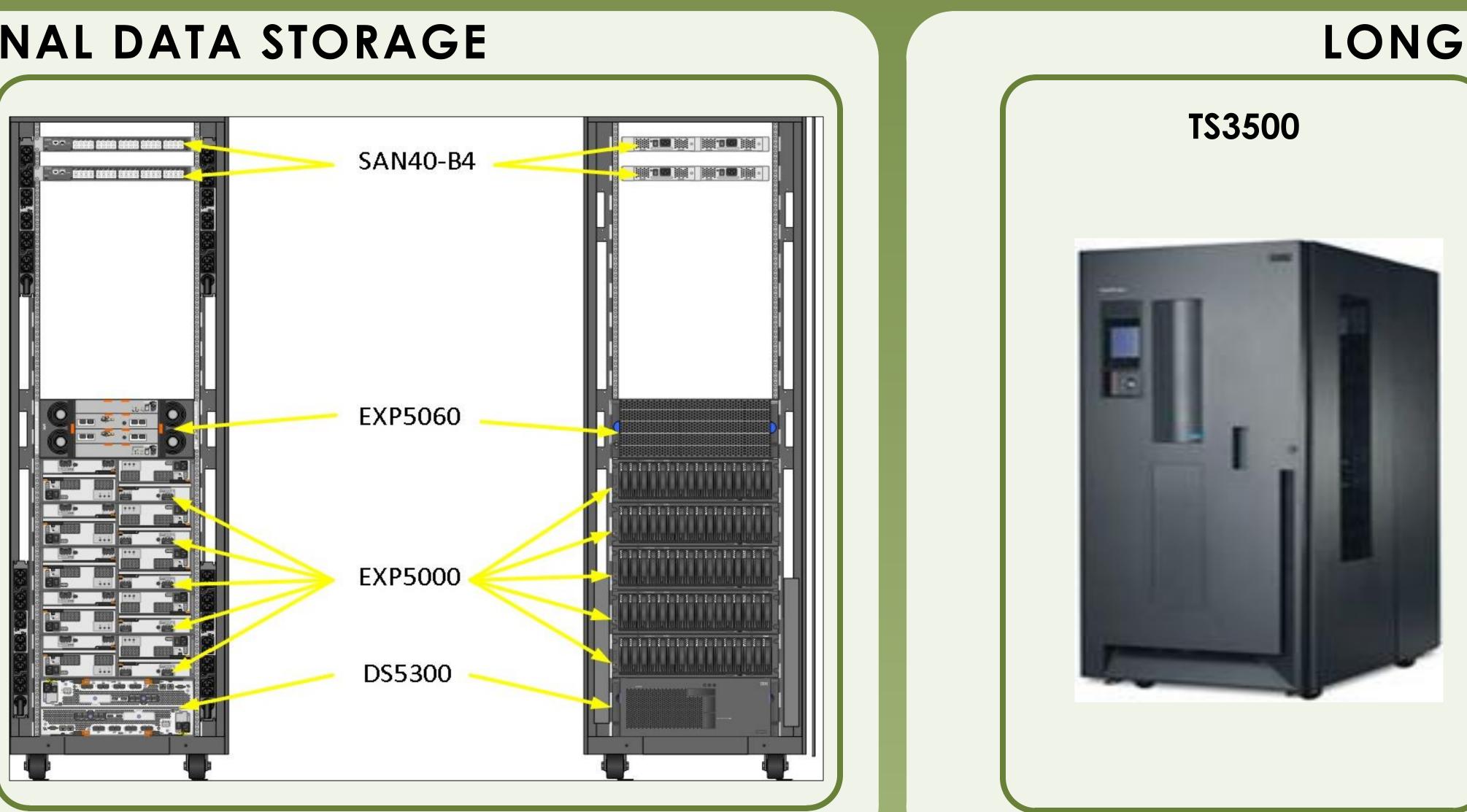
## Data storage server 3650M3

Servers general characteristics:

Intel Xeon Processor 5600; 48 GB SDRAM; 146GB 10K Hot-Swap SAS HDD; 10Gb Ethernet

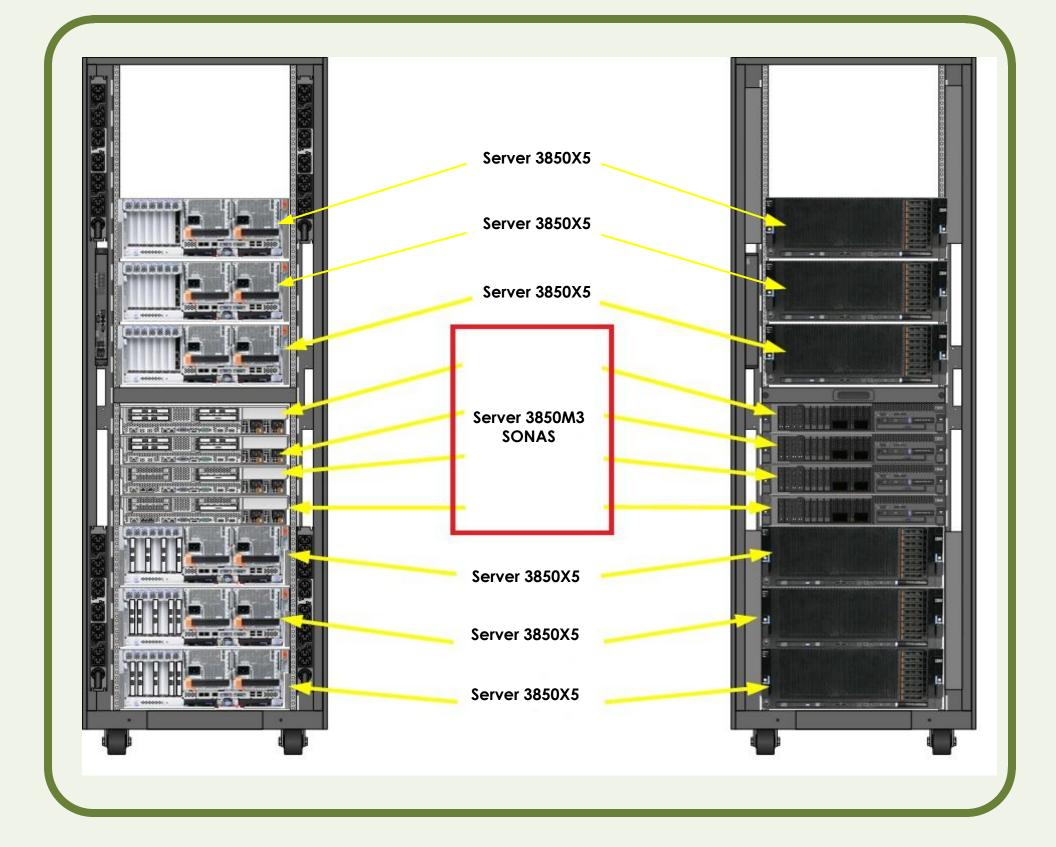
SOFT: Server GPFS, Samba, CLUSTERHA

# AUTOMATED PRODUCTION COMPLEX



## FILE ACCESS SERVERS







Data storage server 3650M3, data backup

Servers general characteristics: Intel Xeon Processor 5600; 48 GB SDRAM; 146GB 10K Hot-Swap SAS HDD; 10Gb Ethernet

SOFT: Server GPFS, Samba, TSM server, client (Tivoli Storage Manager), CLUSTERHA



- Library General Specification:
  - Rack 3584-L53
- 8 drives TS1040 Ultrium 4 Tape Drive
  - Rack-extension 3584-S54
  - Cartridge capacity set 6000 Tb



## **DEVELOPMENT AND INTEGRATION INTO A UNIFIED SYSTEM**

## CREATING FEDERAL UNIFIED AUTOMATED C2 SYSTEM FORMATION

LEVELS NO RAT INTEG

DOMESTIC ORBITAL ALIGNMENT DEVELOPMENT

### NOWDAYS **"GEO INFORMATION CENTER"**

- Custom manufacturing, **Geoinformation Resource** accounting and storage
- Administrative interdepartmental integration

## **ON DATA LEVEL** INTEGRATION

- Data interchange formats harmonization for the operational interaction
- Information of geo data consolidation and publication in all available sources
- Auto inventories Geoinformation Resource for regular update covering

## **DEVELOPMENT STAGES**

# DEVELOPMENT AUTOMATED PRODUCTION COMPLEX GEOSPATIAL INFORMATION - GOOD ANSWER FOR THE CHALLENGES OF OUR DAYS

## VARIOUS KINDS OF INPUT DATA

- Space scanner coverage
- Radar remote sensing data
- Aerial photographs
- Electronic topographic maps
- Nautical navigation charts
- Production printed maps
- Reference data

## FROM SOURCES

- ROSCOSMOS orbital group
- Remote sensing data foreign suppliers
- Federal geo-data archive
- Another information sources

# AUTOMATED PRODUCTION COMPLEX

## **ON TASK LEVEL** INTEGRATION

- Transition from the custommade production to service on demand information support
- Flexible infrastructure adapts to the tasks
- Tasks scheduling with place of operational data on workload **"Center Geoinformation Resource**"
- Deep integration into the information system & interaction in "real time"

