Implementation of the new ATC system in Polish Air Navigation Services Agency in brief

FMP Workshop
Brussels, 24 September 2012
Contence

- Traffic situation in Poland
- Polish ATC system – need for change
- Expected benefits of the new system implementation
- PANSA strategic goals during transition
- Capacity Transition Plan in brief
- Estimated delays breakdown
- Transition calendar and impact on Network performance
- Monitoring values and occurrences
- Smooth implementation
- NMOC support for PANSA
### Traffic situation in Poland – ref W37

#### Overflights
- 58%

#### Arrivals
- 17%

#### Departures
- 17%

#### Domestic
- 8%

#### Traffic / growth 2012 vs 2011 2012 vs 2010

<table>
<thead>
<tr>
<th>Traffic / growth</th>
<th>2012 vs 2011</th>
<th>2012 vs 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>5.7%</td>
<td>15.9%</td>
</tr>
<tr>
<td>Overflights</td>
<td>4.1%</td>
<td>19.9%</td>
</tr>
<tr>
<td>Dep/ARR</td>
<td>3.6%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Domestic</td>
<td>30.1%</td>
<td>38.0%</td>
</tr>
</tbody>
</table>

8 flat sectors/very high demand
New ATC system – need for change!

- Gradual operational saturation from 2010 – delays in peaks above 2000 ops
- Close to saturation in summer 2012 – delays in peaks above 2100 ops/day
- Special events – no reserve without special rules and external support
- Lack of capacity – out of area traffic (no regulations available)
- The Must to cope with KPI for 2014 (0.26 min/flight)
- Old system technical saturation – warnings from FDP
- Old system technical ageing
PANS new ATC system
Polish Enhanced Generation ATC System for Unified Solutions of 21st century

Pegasus 21 was contracted in 2008

- New system will enable:
  - Integration of all ACC, APP and TWR roles
  - **Vertical split** of the ACC sectors
  - Stripless environment
  - Reduced separation minima
  - STCA, MTCD, MONA and other new functionalities
  - Reduction of ATCO workload
  - Operational flexibility
  - Required capacity performance and compliance with delay targets
New ATC system – benefits

• Increased sector capacities thanks to new functionalities
• Airspace structure optimization
• More sectors and opening schemes utilization
• Free route concept implementation
• Vertical split introduction as soon as feasible
• Improved configuration management
• Enhanced Dynamic Capacity Management
PANSA strategic goals during transition

• Avoid safety hazard before and during switchover
• Obey Human Factor at all times of the transition and beyond
• Minimize delays impact on Network, en-route and aerodromes (EPWA)
• Reach yearly delay values corresponding with KPI 2012 and KPI 2013
• Restore full Dynamic Capacity Management when possible
• Restore summer 2012 potential before summer 2013 season
Transition Plan in brief

- Working position technology training – now in progress
- Intensive operational/technical cross-checks – now in progress
- 2-3 nights live switchover Oct/Nov – full backup of old system
- Switchover is now planned on 15th of November 2012
- Transition period will last 180 days
- Transition period planned end on 15th of May 2013
- ALL sectors capacities reduction will be 30% at start
- Initial occupancy will be at maximum level of 10* at start

* 20 minute intervals applied for analysis and predictions
Transition Capacity Methodology

- High traffic sample period days were chosen for the analysis
- STATFOR FEB 2012 high was taken
- Two scenarios are considered: Dynamic A and Static B
- NEVAC analysis and study were applied:
  - Opening schemes optimization
  - Saturation analysis
  - Forecasted delay calculations
  - Performance vs. backbone (dynamic and static scenarios)
  - Identification of group of sectors bottlenecks
## Capacity and Occupancy reduction plan

<table>
<thead>
<tr>
<th>Selected sector example</th>
<th>REF 2012</th>
<th>REF – 30%</th>
<th>REF – 20%</th>
<th>REF – 10 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>45</td>
<td>31</td>
<td>36</td>
<td>40</td>
</tr>
<tr>
<td>G</td>
<td>42</td>
<td>29</td>
<td>34</td>
<td>38</td>
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<td>J</td>
<td>43</td>
<td>30</td>
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<td>39</td>
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<td>42</td>
<td>29</td>
<td>34</td>
<td>38</td>
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</thead>
<tbody>
<tr>
<td>Capacity level</td>
<td>70%</td>
<td>70% - 80%</td>
<td>80%</td>
<td>80% - 90%</td>
<td>90%</td>
<td>90% - 100%</td>
<td>100%</td>
</tr>
<tr>
<td>Occupancy *</td>
<td>10</td>
<td>10 - 11</td>
<td>11</td>
<td>11 - 12</td>
<td>12 - 13</td>
<td>13 - 14</td>
<td>14 - 15</td>
</tr>
</tbody>
</table>

* Estimated values based on 20 min. intervals

Any changes to predicted parameters will be applied after current analysis
# Sector openings hours prediction

## Dynamic scenario A – typical summer roster

8 sectors up to 8 hours a day shift

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<tbody>
<tr>
<td>7</td>
<td>09-10 -</td>
<td>09-10 18-20</td>
<td>09-10 19-20</td>
<td>-</td>
<td>-</td>
<td>09-10 15-16</td>
<td>-</td>
</tr>
<tr>
<td>8 (max)</td>
<td>10-18</td>
<td>10-18</td>
<td>10-16</td>
<td>10-17</td>
<td>-</td>
<td>10-15</td>
<td>09-16</td>
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</tbody>
</table>

## Static scenario B – typical winter roster

8 sectors up to 5 hours a day shift

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<tbody>
<tr>
<td>7</td>
<td>09-10 15-17</td>
<td>15-16</td>
<td>10-13 15-17</td>
<td>13-15</td>
<td>10-17</td>
<td>09-10 12-16</td>
<td>09-11 15-16</td>
</tr>
<tr>
<td>8 (max)</td>
<td>10-15</td>
<td>10-15</td>
<td>13-15</td>
<td>10-13</td>
<td>-</td>
<td>10-12</td>
<td>11-15</td>
</tr>
</tbody>
</table>
Estimated delays breakdown

Scenario A (dynamic) all period average = 1.6 min/flight

Scenario B (static) all period average = 2.3 min/flight
Estimated delays breakdown

Dynamic all period sum = ~ 386,500 minutes

Static all period sum = ~ 642,100 minutes
Estimated delays breakdown

<table>
<thead>
<tr>
<th>Variant</th>
<th>Accumulated period delays [min]</th>
<th>Average delay [min/flight]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static B 2012</td>
<td>~ 228.800</td>
<td>~ 3.7</td>
</tr>
<tr>
<td>Dynamic A 2012</td>
<td>~ 190.600</td>
<td>~ 3.1</td>
</tr>
<tr>
<td>Static B 2013</td>
<td>~ 413.300</td>
<td>~ 1.9</td>
</tr>
<tr>
<td>Dynamic A 2013</td>
<td>~ 195.900</td>
<td>~ 0.9</td>
</tr>
</tbody>
</table>
**Transition calendar & impact on Network performance**

<table>
<thead>
<tr>
<th>Item</th>
<th>Period</th>
<th>Impact on network performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final ops training including shadow mode, night live tests</td>
<td>Mid Aug 2012 – Mid Nov 2012</td>
<td>Medium/High</td>
</tr>
<tr>
<td><strong>Cut over</strong></td>
<td><strong>15 November 2012</strong></td>
<td><strong>High</strong></td>
</tr>
<tr>
<td>Transition period – Phase 1</td>
<td>Mid Nov 2012 – End Dec 2012</td>
<td>Scenario A: Medium/High</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scenario B: High</td>
</tr>
<tr>
<td>Transition period – Phase 2</td>
<td>January 2013</td>
<td>Scenario A: Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scenario B: Medium/High</td>
</tr>
<tr>
<td>Transition period – Phase 3</td>
<td>February 2013</td>
<td>Scenario A: Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scenario B: Low/Medium</td>
</tr>
<tr>
<td>Transition period – Phase 4</td>
<td>March 2013</td>
<td>Scenario A: Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scenario B: Low/Medium</td>
</tr>
<tr>
<td>Transition period – Phase 5</td>
<td>April 2013 – Mid May 2013</td>
<td>Scenario A: Low</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Scenario B: Low/Medium</td>
</tr>
<tr>
<td><strong>Normal operations</strong></td>
<td><strong>15 May 2013</strong></td>
<td><strong>No</strong></td>
</tr>
</tbody>
</table>

Scenario A – summer roster,  Scenario B – winter roster
Monitoring values and occurrences

- Technical and operational support to ATCO in ops room everyday
- Professional and friendly atmosphere
- All important CIR data monitoring on daily basis
- Data will be stored for comparison, analysis and evaluation
- January 2013 will be the first month with some preliminary conclusions
- January 2013, March 2013 and April 2013 might be the most difficult
- Hopefully summer 2012 performance will be reached before JUL 2013
- No external stress is allowed – this is huge change in ATCOs life
Smooth implementation - hopefully

- Implementation of the new ATC system is The Process
- This process applies unique rules which may vary from standards except safety issues
- Target date 15th of Nov will be confirmed on Sep/Oct after the last safety & functionality tests and risk assessment.
- If postponement is the case, the new cutover date will be precisely coordinated with DNM and announced as soon as possible
- Some RAD restrictions, LOAs and scenarios will be applied at start
- Old system will be unmanned and warmed up to three months
NMOC support for PANSA

• Building situational awareness among ops and managing staff
• Expecting special care and attention at very first weeks
• NMOC understanding „long special event” and FULL support
• Russian Winter exceptional traffic handling rules and measures
• Cooperation with neighbouring ACCs
• Some traffic reroute and flat demand of traffic composition required
• Individual flow management techniques on the day of operation
• Other support derived from ad’hoc meeting(s)
Thank you for your attention!

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