

CRYSTAL ON SOI FROM VIRTUALITY TO REALITY



JOËL JORDAN PROGRAMME DIRECTOR, VIRTUAL CENTRE TRANCHE 2

Virtualization is one of the foundations on which skyguide is building its future. And the Virtual Centre is the cornerstone of virtualization. Currently, Joël Jordan and his team are developing and delivering Tranche 2 of the Virtual Centre (VCT2). And within VCT2, CRYSTAL, the tool to forecast the air traffic volume, plays an important role: it's migration is a milestone in the deployment of the Virtual Centre and has, as Joël Jordan states, helped "to kick off the learning curve in an area in which the risk was limited, but which nonetheless touched the heart of the business."

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SKYGUIDE **Joël Jordan, could you please explain in terms understandable for non-technicians what CRYSTAL is and why it had to be migrated to a service-oriented infrastructure (SOI)?**

JOËL JORDAN CRYSTAL is a tool to forecast the air traffic volume at any given time – in a certain way like a crystal ball, but of course much more reliable! Using CRYSTAL's traffic predictions, the staff's workload and peaks, as well as the organization of the control room, can be managed better while ensuring a smooth and efficient traffic flow. We have now migrated the CRYSTAL solution that already existed at GVA Airport since 2010 and at ZRH since 2011 to SOI with the purpose of serving the two centres from one place in Dübendorf. We have also changed the internal structure of the solution.

In that context, what has been the role of CRYSTAL on SOI for Virtual Centre and its Tranche 2?

JJ For VCT2 it has been a way to give the programme a leg up and to learn with a concrete goal. VCT2 not only brings changes for ATM operations: with Service-Oriented Architecture (SOA), Agility and DevOps (Development and IT Operations), we introduce new ways of engineering and delivering capabilities, which will result in many changes. VCT2 is like a child learning to walk. We decided to start with a critical ATM function, but not right at the sharp end. It has been a learning instrument and a measure to develop trust.

What are the key findings?

JJ CRYSTAL on SOI has been the flagship. On the operational side, we learned that we can be confident in such a Swiss-wide and service-enabled solution. On the engineering front, we have built experience on how to “service enable” a solution. In order to better master our core ATM data, we want to adopt a “data centric” driven approach of service enablement. We learned that we do not have to rewrite all our software. Regarding IT operations, we have gained knowledge on how to set up the solutions and acquired the basic competences to run them. Such a transversal and Swiss-wide approach also triggers new challenges: its “nodal role” creates dependencies between products, and we need more discipline and automation in order to keep it running. On the human side, we have noticed how much it takes to mobilize our positive energies in order to fight against the inertia of past habits. We had to start learning how to change. It was difficult but the findings were worth the effort.

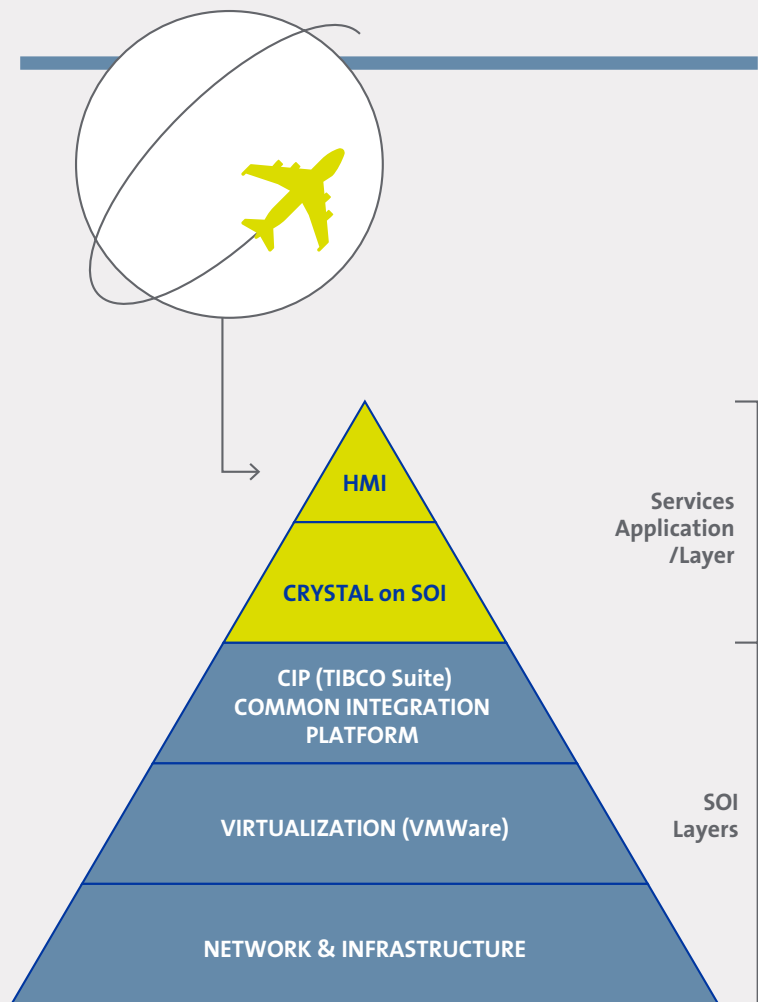
So obviously you appraise CRYSTAL on SOI as a success?

JJ It is operational and running in a very stable way. A single system now serves two locations from our data centre in Dübendorf. We have demonstrated that something new can be delivered. We have experienced and learned with reasonable and controlled disturbances. CRYSTAL on SOI has not only played its teaching role but has also become a milestone. This experience has brought us together and has established a positive mindset and a solid team spirit, creating trust in each other. We still have a long way to go, especially in order to increase our change speed and our efficiency. We need to keep the pressure, but in the same time learn to be patient.

What are the next steps?

JJ The next key step is “to touch the sharp end” in the operations with one of our next milestones called New Route Handling (NRH). With this modernized operational concept for Flight Data Management (FDM), we will bring into operation the first function at the sectors delivered from a single system in Dübendorf and serving the ATCO positions in Geneva and Dübendorf. Our focus will also be to continue the system convergence, especially in the Flight Data Processing area. This requires further harmonization based on a new way to consider the path towards New Route Handling. With this, we are laying the foundations for Free Route Airspace and a simpler way to operate.

“A SINGLE SYSTEM NOW SERVES TWO LOCATIONS FROM OUR DATA CENTRE IN DÜBENDORF”



THE CRYSTAL SERVICE-ORIENTED PYRAMID