# Strypes

an ICT Group company

SOLARIS TO LINUX MIGRATION

INTRODUCTION

With Oracle Solaris 10 Premier Support ending on January 31, 2018, an increasing number of businesses are considering alternative solutions. We've been getting questions about the possibilities to migrate from Solaris to Linux. The alternative approach is to migrate from Solaris to the Windows platform; however, in this white paper we focus on the more natural transition to Linux.
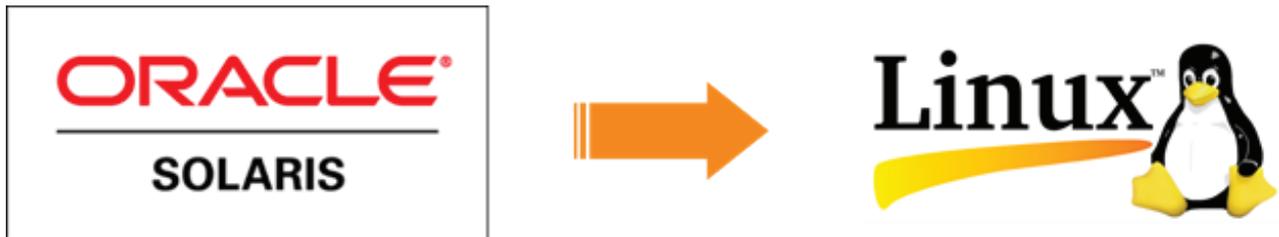
CHALLENGES

Migration from Solaris is complex, a lot of different subjects must be considered like cost, time, effort and short and long-term gains and challenges. You need to consider:

I	II	III
SHOULD I MIGRATE TO LINUX OR TO WINDOWS?	**WHAT ARE YOU GOING TO DO WITH YOUR APPLICATIONS/TOOL-CHAIN?**	**SETTING UP THE MIGRATION AS A CONTINUES PROGRAM.**
a) Can you deploy it? - this includes considerations of the hardware, OS and related licenses but also having skilled staff to support the environment	a) Having an in-house developed set of applications pretty much dictates a natural way to go: stay within the same UNIX domain and adapt/recompile your code instead of rewriting from scratch.	a) It is typically a long running effort, managing resources, milestones and deadlines is crucial.
b) can you run it? - TCO (total cost of ownership), vendor locking, training the technical and non-technical staff are just a few of the long-term considerations.	b) In case you are using 3rd party vendor applications the work may have been done for you.	

ONE OF THE BIGGEST OBSTACLES SHIFTING GEARS FROM SOLARIS TO LINUX - "THE LITTLE/BIG ENDIANNESS"

The SPARC systems makes use of the big-endian architecture, while the x86 is a little-endian architecture. This means that the whole software archive needs to be ported to another architecture.

Endianness is about the sequential order in which bytes are arranged into larger numerical values when stored in memory, or when it is transmitted over digital links.

One source of endianness problems is non-uniform data reference. It is often featured by data type mismatches resulting from either data element casting, use of a union data structure, or the use and manipulation of bit fields.
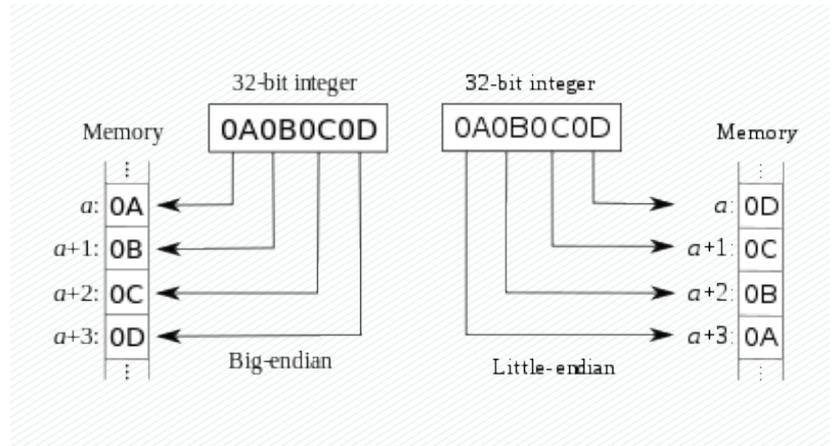
WHAT IS OUR EXPERIENCE WITH SOLARIS TO LINUX MIGRATIONS?

At Strypes, we have delivered a series of successful OS migration projects. For a leader in the machine manufacturing industry we migrated the source code for all their products and machines from Solaris to Linux. Including all past releases, we examined more than 300 000 000 lines of code. After 5 years of migration, we delivered successfully producing machines, with Linux installed on its main host.
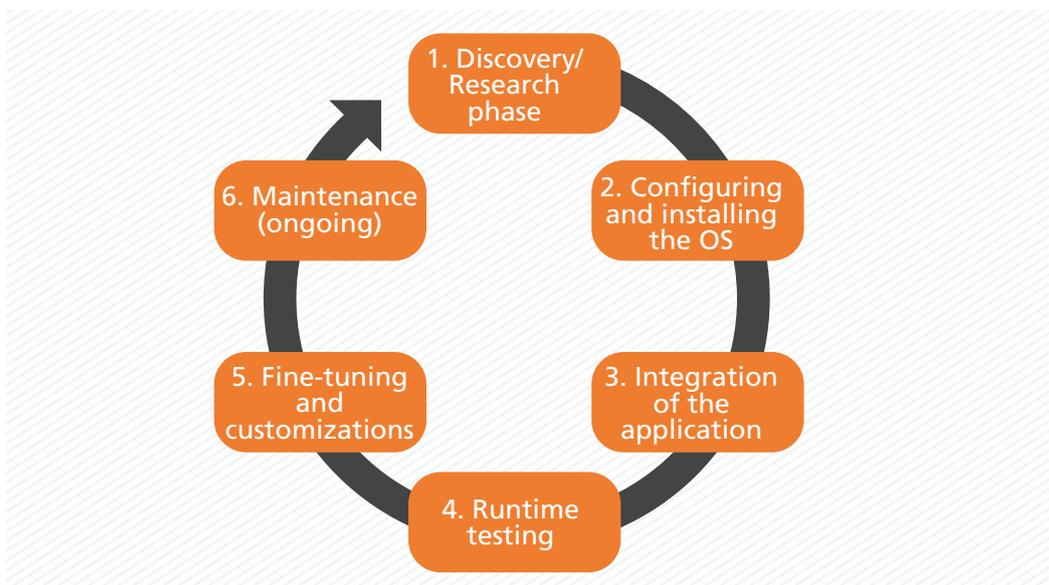
THIS PROJECT CONSISTED OF 6 PHASES

1. DISCOVERY/RESEARCH PHASE

We checked:
- the Client's hardware supported 64bit computing, a prerequisite to move from 32bit to 64bit.
-that all the libraries and configurations in the new OS distribution package (Linux) supported 64bit.

2. CONFIGURING AND INSTALLING THE OS

The applications we needed to support had a very complex set of requirements no readily available OS distribution would cover fully, so we ended up building a custom OS - still Linux/GNU but fine-tuned to the customer's specifications.

3. INTEGRATION OF THE APPLICATIONS

Having a huge and complex application that is written in multiple programming languages (several C flavors, Python, Perl, etc.) means that a significant amount of code rework/adaptation is needed. This took time, effort and collaboration. At this point, we had to run the application, while tracking and tackling any issues on the fly. After a successful start, we made sure that all drivers initialized successfully and there was communication between side hosts.

4. RUNTIME TESTING

Once having installed and configured the OS, followed by a successful application build and run, it was time to use the production machine and see whether it would fulfill its purpose. As a first step, we had to run a quality test. This involved checking whether the machine could produce anything at all. Next, we checked if it produced the exact product.

The second step consisted of an efficiency test: could the machine reproduce its production, and how long does it take to manufacture a single item.

The last step was to assess the machine's throughput and service times.

5. FINE-TUNING AND CUSTOMIZATIONS

We provided upgrades and optimizations, like better diagnostic, improving the speed of the machine and improving its throughput.

6. MAINTENANCE (ONGOING)

These projects are never finished. Even when the migration is successfully done, it's recommended to invest time and resources in continuous development and upgrades.

HOW MUCH INVOLVEMENT DID WE NEED FROM THE CLIENT?

Since this was a lengthy and complex project (it still is), we basically became part of the Client's organization and their decisions. These kinds of projects require strong customer and supplier involvement. It's of the utmost importance to be able to communicate with a customer representative who is solely dedicated to the migration process.

CONCLUSION

With Solaris becoming outdated and not serving modern business needs anymore, it's time to take control of the future of your product. It is worth considering a Linux migration as the next strategic step to keep your software assets relevant. These kinds of projects take a lot of time need effort. If you consider your options, feel free to get in touch, we will be happy to discuss your situation!
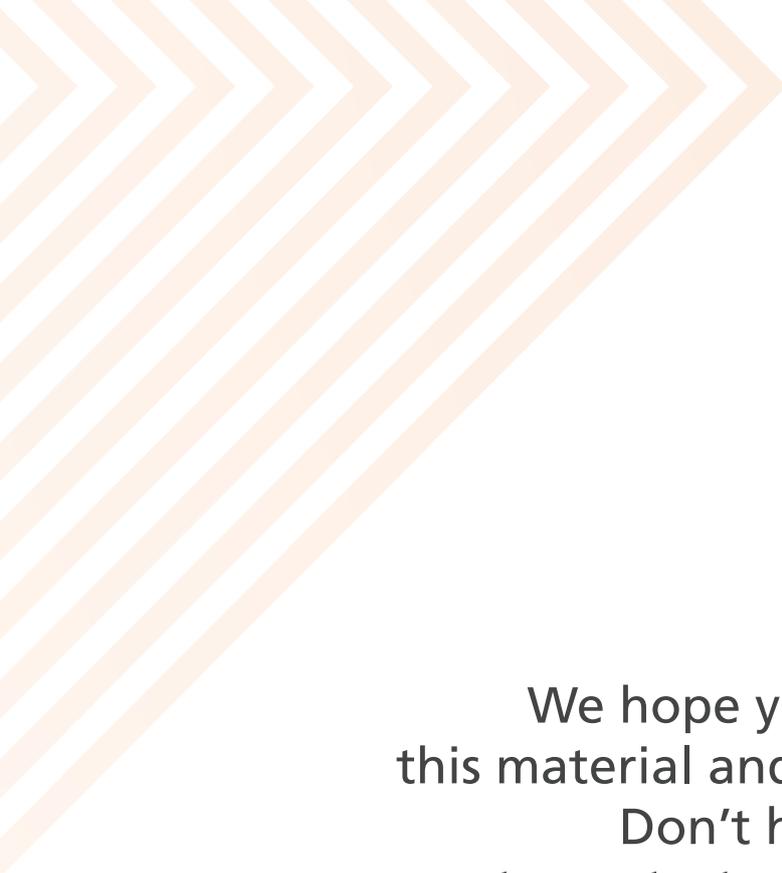
We hope you enjoyed
this material and found it useful.
Don't hesitate
to contact us and discuss
things in more detail!