

# Plan de migración de una administración pública

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## **Introducción**

En este último módulo de la asignatura se pone en práctica todo lo aprendido durante el curso.

A lo largo de los tres módulos anteriores se estudian los principales argumentos que impulsan a las administraciones públicas a adoptar sistemas de software libre, algunos de los planes directores más destacados, argumentos para el uso del software libre y liberación del mismo por parte de las administraciones, las fases de una migración a software libre y algunos de los casos de mayor relevancia en cuanto a migraciones se refiere.

Con los conocimientos adquiridos, estamos en disposición de elaborar un pequeño plan de migración. Los datos de la administración a migrar pueden ser reales o ficticios, pudiendo escoger también los que se indican en este módulo.

Algunos de los contenidos de este módulo han sido recopilados de las consultas que los estudiantes de cursos anteriores han efectuado a los consultores.

## Objetivos

Los objetivos de este módulo son los siguientes:

- 1.** Poner en práctica todo lo aprendido en los módulos anteriores.
- 2.** Elaborar un plan de migración a software libre.
- 3.** Establecer las normas del plan de migración.
- 4.** Guiar al estudiante por aquellos puntos del plan de migración que puedan resultarle confusos.

## 1. El plan de migración

Un proyecto de migración es, generalmente, un proceso largo. En el módulo 3 se comenta que una migración a software libre es un proyecto de ingeniería, sin embargo, no debemos pensar únicamente en la parte de ingeniería, debemos saber organizar los recursos de los que disponemos, principalmente los humanos, para realizar y gestionar correctamente la migración.

La definición de mecanismos de control será fundamental para poder realizar una migración con éxito. No debemos concentrarnos únicamente en los detalles técnicos, los cuales nos consumirán recursos e impedirán lograr un buen resultado. Sin documentación ni planificación, el proyecto fracasará. Por ejemplo, la migración de un navegador web sin un plan implicará eventos no controlados. Esto provocará pérdidas no cuantificables en horas de trabajo.

En todo proyecto el riesgo debe ser controlado. No basta con la disposición de especialistas en software o hardware, será necesario conocer las necesidades de la organización y también la manera de funcionar.

En el plan de migración deben existir hitos predefinidos, los cuales serán controlados en cada etapa revisando el cronograma y la precedencia de cada actividad.

Las mejoras o cambios en la funcionalidad original no son estrictamente parte de la migración, por lo que debe quedar clara la funcionalidad que se desea obtener al finalizar el proceso de migración. Por ejemplo, migrar el sistema de correo no es solamente cambiar un cliente por otro, debemos dar a los usuarios finales las mismas funcionalidades que tenían con el software reemplazado.

Como parte de la gestión debemos contemplar el proceso de elección del software. El análisis y la elección del software a utilizar influirán en el tiempo y la metodología de la migración.

Los aspectos más importantes en la elección del software que utilizaremos son los siguientes:

- Soporte del proveedor (información pública disponible en la red o servicios pagados).
- Desarrollo anexo necesario para que el paquete de software elegido cumpla con las funcionalidades.
- Compatibilidad y eventual interoperabilidad con otros paquetes de software en uso.

- Evaluar las funcionalidades que no estén en el nuevo paquete de software y revisar si podremos prescindir de ellas.

La tarea de la elección de software se verá facilitada en la medida en que tengamos más antecedentes sobre el software y las versiones disponibles. No debemos olvidar que, cuando revisemos las alternativas de software a utilizar, debemos tener en cuenta la compatibilidad con versiones anteriores. Usualmente tendemos a reemplazar una pieza de software encantados por las nuevas funcionalidades y potencialidades de éste, perdiendo el foco en la integración funcional con todos los componentes. También debemos tener en cuenta la madurez del software que vamos a seleccionar para la migración.

En la madurez están implícitos aspectos que debemos considerar, como por ejemplo:

- Disponibilidad de herramientas de administración.
- Tiempo de vida de la última versión.
- Tasa de errores reportados.
- Tasa de errores corregidos.
- Madurez de los estándares utilizados por el software.
- Popularidad del software, medido en cantidad de usuarios y reportes de éxito.

Estos puntos nos ayudarán a disminuir los riesgos ante errores no corregidos que impliquen un retraso en el proceso de migración.

En los capítulos 10 y 11 del documento *Migración a Software Libre. Guía de Buenas Prácticas*, se puede encontrar una amplia lista de software recomendado. Por una parte tenemos el software recomendado por el Proyecto SourcePyme y por otro lado, un directorio de software que debemos tener en cuenta a la hora de llevar a cabo un proyecto de migración.

El software detallado en el citado documento debe ser revisado para la utilización de la versión correspondiente, siendo necesario revisar también las recomendaciones de los desarrolladores.

A continuación se detallan los puntos que debe tener nuestro plan de migración. El estudiante podrá incorporar nuevos puntos, pero los que aquí se indican no podrán ser eliminados.

### 1.1. Introducción

Deberá hacerse una breve descripción e introducción del proyecto de migración que hay que realizar, con indicación de la justificación y punto de partida, objetivos generales y alcance del proyecto.

#### Lectura obligatoria

Daniel Sáenz; Martín Peris; Ricard Roca; David Anes (2007). *Migración a Software Libre. Guía de Buenas Prácticas*.

<https://discovirtual.aimme.es/docs/sourcepyme07/migracionalsoftwarelibre.pdf>



El estudiante podrá optar por realizar el proyecto para una administración pública real y que conozca en profundidad o para una administración pública ficticia.

## **1.2. Conceptos y consideraciones previas**

En este apartado se incluirá un glosario de términos, acrónimos y abreviaturas, aunque también puede trasladarse a la parte final del documento.

En cuanto a las consideraciones previas, se hará referencia a otros casos de éxito de similares características, indicación de las tareas a realizar (creación de los grupos de trabajo, determinación del responsable de la migración, resultados esperados tras la migración, seleccionar un grupo pequeño de usuarios para hacer pruebas piloto, como por ejemplo, un departamento, etc.).

## **1.3. Metodología**

### **1.3.1. Situación actual**

Realizaremos un estudio de la situación actual, así como de las características de la Administración pública seleccionada para la migración.

Si se trata de una administración local, como por ejemplo un ayuntamiento, es interesante dar información estadística sobre el municipio: situación geográfica, superficie en kilómetros cuadrados, densidad de población, número de habitantes, media de edad de la población, cercanía o lejanía con alguna localidad importante, estimación del número de habitantes con acceso a Internet, si la localidad dispone de telecentros, Wi-Fi en determinadas zonas de la localidad, etc. También es interesante facilitar alguna reseña histórica de interés.

### **1.3.2. Inventario**

En el caso de que la Administración pública seleccionada sea ficticia, se podrá utilizar la siguiente información de base:

- Una administración local de una población mayor a los 10.000 habitantes y con un mínimo de 20 empleados públicos / puestos de trabajo.
- El sistema actual está basado completamente en soluciones Microsoft. Windows 2000, Windows XP, Windows Vista, Windows 7 y MS Office 97 o posterior. Puede parecer extraño pero estas combinaciones de software aún son bastante frecuentes en el ámbito de las administraciones públicas. Servidores Windows 2000 o 2003 Server con ActiveDirectory.

- Sistema de correo ofrecido por un ISP con una cuenta por usuario y acceso POP/IMAP y WebMail.
- Existe un mínimo de dos puestos de trabajo con soluciones basadas en AutoCAD.
- Aplicación de registro de entrada y salida realizada en Microsoft Access.
- Necesidad de sincronización de correo, contactos y agenda con dispositivos móviles tipo Windows Mobile o Blackberry.
- Utilización de soluciones de firma electrónica en los puestos de los cargos electos.
- Las estaciones de trabajo tienen una antigüedad media de 4 años y los servidores de 5.  
Estos criterios reflejan, según nuestra experiencia, los principales problemas en planes reales de migración.

### 1.3.3. Costes

Indicaremos los gastos que tiene la Administración pública antes de la migración, en cuanto a costes de licencias de software, mantenimiento del software y hardware, formación de los empleados públicos, etc.

Deberá realizarse una comparación de los costes antes de hacer la migración y los que se estima tener después de la misma.

En el caso de estar realizando el proyecto de migración de una administración ficticia, tendremos en cuenta que antes de la migración los costes anuales de mantenimiento de las licencias de software de cada uno de estos equipos es de 90 euros para las estaciones cliente y de 750 euros para los servidores.

En cuanto a los costes de personal tenemos los siguientes:

- Coste de formador 30 €/h.
- Coste de consultor senior 60 €/h.
- Coste de consultor júnior 45 €/h.

Si por el contrario se trata de una administración real, será necesario aportar los datos reales.

### **1.3.4. Recursos dedicados**

Debemos determinar, según el tipo de migración que realicemos, el personal que vamos a necesitar, así como si se tratará de personal propio o subcontratado.

Es importante indicar los perfiles de los distintos profesionales y usuarios que intervendrán en la migración.

### **1.4. Análisis de viabilidad funcional, operativo y técnico**

En un proyecto real, deberíamos tener en cuenta el marco regulatorio y de competencias de la Administración pública, sin embargo, para simplificar el trabajo, no lo tendremos en cuenta en nuestro plan de migración.

En este punto podemos emplear la herramienta de análisis DAFO para determinar las debilidades, amenazas, fortalezas y oportunidades.

1) **Viabilidad funcional.** Debe determinarse si la migración es o no posible, aportando los argumentos oportunos. Se deben identificar los posibles riesgos potenciales y tratar de garantizar la migración, siempre que sea posible su realización.

Este apartado se puede abordar desde el estudio de otras migraciones, con la validación por parte del cliente de un piloto inicial que contenga los casos más representativos.

2) **Viabilidad operativa.** La viabilidad operativa siempre dependerá de los recursos humanos que tengamos disponibles para la migración. Debe determinarse si el sistema funcionará y si será aceptado y utilizado una vez se finalice. También es interesante tener en cuenta a los usuarios y si estos aceptarán el cambio.

3) **Viabilidad técnica.** Debemos concretar si disponemos de la tecnología necesaria para realizar la migración. En cualquier caso, debemos indicar la arquitectura técnica, ya sea la disponible o la que se debe adquirir para poder realizar la migración.

### **1.5. Plan de migración**

#### **1.5.1. Propuesta tecnológica inicial**

Llegados a este punto, ya debemos tener el suficiente conocimiento de la Administración pública. Por lo tanto, es hora de realizar una primera propuesta tecnológica.

Debemos indicar cada una de las aplicaciones de software libre que sustituirá a su homóloga de software propietario. Esta lista deberá estar categorizada por tipo. También debe indicarse si es necesaria la adquisición de nuevo hardware, la ampliación de anchos de banda, compras de dominios para nuevas páginas web, etc.

### **1.5.2. Fases y detalles del plan**

Indicaremos el tipo de migración que vamos a realizar. Debemos tener en cuenta la clase de administración y los objetivos de la misma.

Desglosaremos cada una de las fases de nuestro plan, con una explicación del desarrollo de las mismas, indicando el resultado final que esperamos de cada una de las mismas.

### **1.5.3. Calendario**

Se elaborará un calendario para cada una de las fases y subfases de la migración, con indicación de la fecha de inicio, fecha final, duración, participantes, etc. Es importante hacer un diagrama de Gantt de todo el proyecto.

### **1.5.4. Postinstalación**

Una vez hecha la migración, debemos establecer mecanismos de control que ayuden al mantenimiento y máximo aprovechamiento de los sistemas migrados.

Los usuarios deben entrar en una dinámica que les permita familiarizarse con las aplicaciones recién migradas. Si durante la migración se ha utilizado alguna herramienta cooperativa para la coordinación, los usuarios pueden aprovechar esta herramienta para conocer mejor sus aplicaciones, compartiendo experiencias, sugerencias, etc.

## **Mantenimiento y apoyo**

Se indicarán los recursos con que debe contar la administración para poder llevar a cabo el correcto mantenimiento del sistema migrado.

Es posible que necesitemos contratar personal con unos perfiles determinados, desarrollo de una web de apoyo, herramientas colaborativas, sistema de encuestas, sugerencias, foros, etc.

## **Nuevas implementaciones**

Se deben describir las nuevas implementaciones y actualizaciones de software que requerirá la organización, así como el tipo y tamaño de las mismas.

## **Evaluación y conclusiones**

El estudiante deberá realizar su propia evaluación.

### **1.5.5. Gestión del cambio**

En este punto indicaremos todas aquellas acciones formativas que creamos necesarias para que la gestión del cambio y uso de los nuevos productos de software libre sea correcta, ya sea antes, durante o tras la realización del proyecto.

#### **Formación**

Se establecerá un plan de formación, tanto para usuarios como para administradores, indicando el número de horas de formación para ambos grupos.

#### **Elementos de apoyo a la formación**

Indicación de las herramientas con que contamos para la formación, como por ejemplo, plataforma de formación *on-line*, uso de cursos de especificación SCORM, etc.

#### **Apoyo**

Se indicará todo el material de apoyo que consideremos necesario. Sabemos de la abundante información que podemos encontrar en Internet, por lo que un ejemplo claro de lo que podemos incluir en este punto es una lista de aquellas direcciones con recursos de formación.

## Resumen

Se estima que, a nivel mundial, el dinero de los contribuyentes destinado al uso de software privativo asciende a más de 1 billón de dólares al año (unos 677.900 millones de euros, aplicando la conversión establecida el día 2 de noviembre del 2009, que indica que 1 € = 1,4751 USD).

Un sistema operativo privativo tiene un coste aproximado de 140 euros, y una suite ofimática privativa unos 115 euros. Por lo tanto, por cada equipo nuevo se necesita una inversión en software de 255 euros aproximadamente.

En un proyecto de migración a software libre, la planificación puede marcar la diferencia entre el éxito y el fracaso. Esta planificación debe realizarse para tratar de minimizar la repercusión del proyecto en el trabajo diario del personal de la Administración pública. Lo fundamental es el trabajo y no la herramienta.

Ha de dedicarse un tiempo a la formación, no sólo de los usuarios, sino sobre todo para el personal informático.

Uno de los principales problemas a la hora de realizar un proyecto de migración a software libre es el miedo al cambio tecnológico y éste puede llegar a frenar el proyecto. Para vencer este miedo, es importante la formación, planificación y disponer siempre de un "plan B".

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e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

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