The Future of JDF

CIP4 ORGANIZATION

XJDF

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- Introduction

- Current JDF Concepts

- Modern JDF Implementation

- Modifications Needed

- Response to Modern Concepts

- Next Actions

Introduction and background information about JDF.

INTRODUCTION

- JDF was initiated in 1999

- Published at Drupa 2000

- Founder Members: Adobe, Agfa, Heidelberg, MAN Roland

- Regarded as Successor to PPF and PJTF

→ **JDF is a technical standard being developed by the graphic arts industry.**

➢ **The goal of CIP4 and JDF is to encompass the whole life cycle of a print and cross-media job.**

The core concepts as defined in the *latest* JDF Specification.

CURRENT JDF CONCEPTS

Integration through Cooperation

Job Details
- Customer Details
- Deadlines
- …

Process Logic
- Workflow
- Process Dependencies

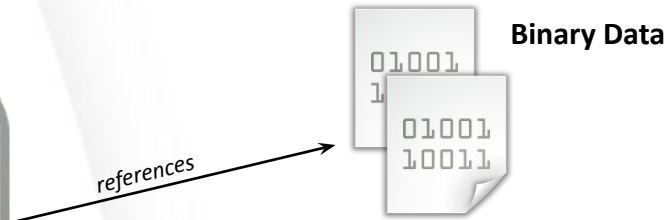**SFDC (Shop Floor Data Collection)**
- Time Registrations
- Notifications
- ….

Binary Data
- Customers Artwork
- Process Settings
- …

Binary Data

Master JDF File
(located on file system)

Job Details

Process Logic

SFDC

references

- One physical JDF File per job

- JDF references binary data

- JDF File include Job Details, Process Logic and SFDC

→ **A JDF File is used as physical data container holding all the information for a specific job.**

Pure Filesystem:

C:\myMIS\jobs

Job #1

Job #2

...
.

Job #n
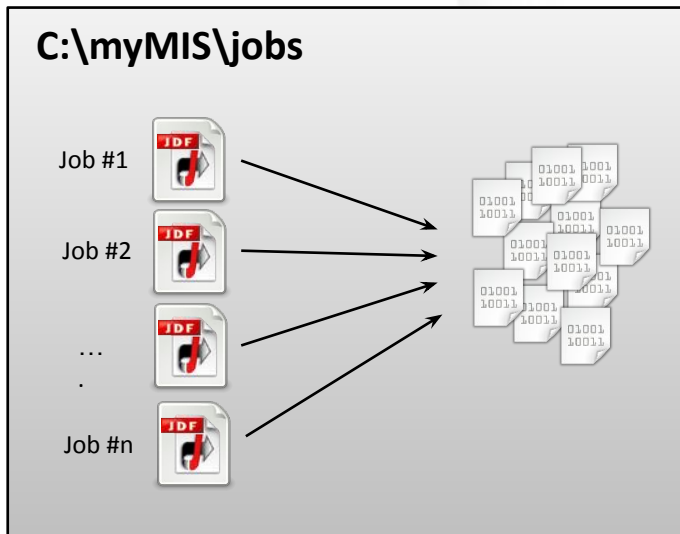
- One JDF File per Job physically on the file system

- Jobs are archived by keeping JDF Files on file system

- Binary data is also stored on file system

→ **Job data is stored on file system – No database is required (!!)**

"A **Gray Box** specifies a loose combination of several **Processes** with a specific goal. A **Gray Box** does not specify all **Processes** or all **Resources** - except for **Output Resources**.
In a **JDF** Instance, a **Process Group** with a *Types* **Attribute** and no child **Nodes** represents a **Gray Box**." (JDF Specification 1.4a)

Master JDF File
(located on file system)
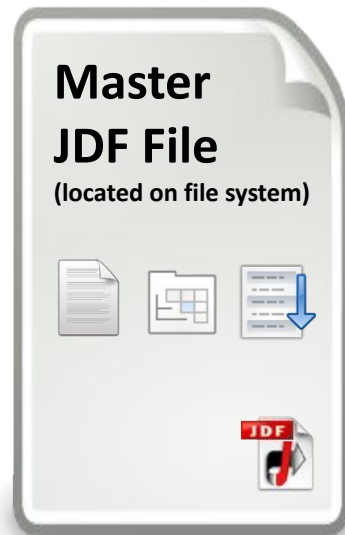
- JDF Process Mechanism

- Definition of Process Logic but not the Process Step in detail.

- Gray Boxes are used when process details are not defined yet

→ **Gray Boxes are defined for transferring incomplete data**

CIP4 ORGANIZATION

JDF Scope

Master JDF File
(located on file system)

MIS

Spawn Node

Merge Node

Modify JDF Node
- Add AuditPool
- Modifications
- ….

- The Master JDF File holds all details for a single job

- Interaction is based on spawning and merging JDF Nodes

- Gray Boxes are filled step by step

- Devices enrich JDF Nodes by SFDC

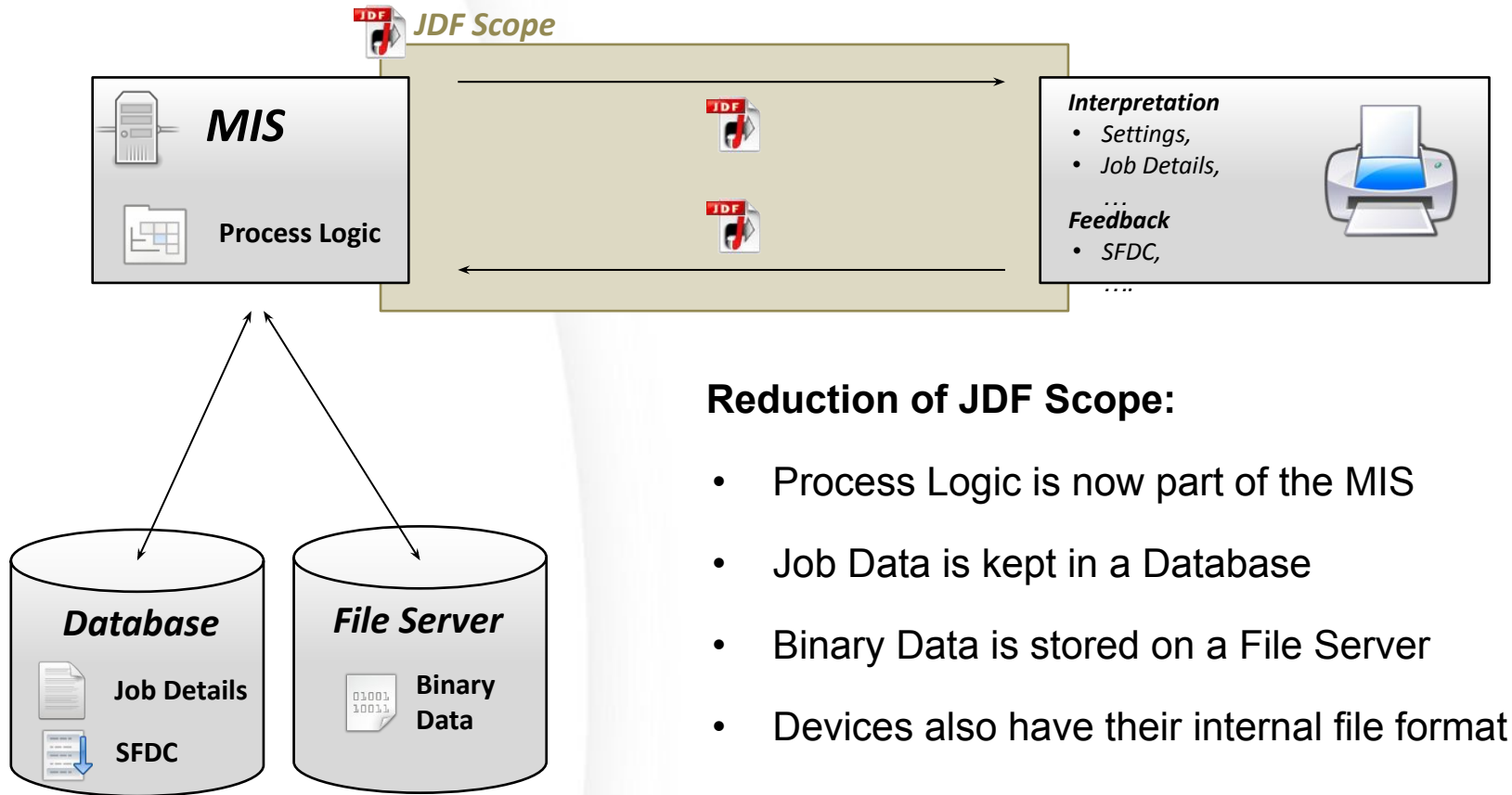→ **The holistic system architecture is defined by JDF.**

XJDF

➢ **JDF defines implementation specific details.**

Integration through Cooperation

How JDF is implemented in modern systems

MODERN JDF IMPLEMENTATIONS

JDF Scope

MIS

Process Logic

Interpretation
- *Settings,*
- *Job Details,*
  …

Feedback
- *SFDC,*
  ….

Database

Job Details

SFDC

File Server

Binary Data

Reduction of JDF Scope:

- Process Logic is now part of the MIS

- Job Data is kept in a Database

- Binary Data is stored on a File Server

- Devices also have their internal file format

→ **Most Systems use JDF as a pure information interchange technology**

Why Modern Systems don't use JDFs implementation specific details any longer?

Flexibility in architecture
- Standard Databases have become very powerful
- MIS Vendors have developed powerful Workflow Engines
- Internal Concepts of File Storage were introduced

Flexibility in JDF
- Variability to Devices
- Decrease Complexity

→ **Development Frameworks and Concepts have changed over the years.**

Common Databases provides significant features Out-of-the-Box while JDF does not:

- **Multiusers concepts:**
  Concurrency Access, Transaction, Security…

- **Uptime concepts:**
  Clustering, LoadBalancing, High Availability,
  Live Backups…

- **Data Analysis / Data Mining:**
  Statistics, Controlling, Data Transparency….

→ **The data storage concept of JDF is definitely no longer is state of the art.**

Benefit: Workflow-Engine

Modern MIS's usually include very powerful and generic Workflow Engines:
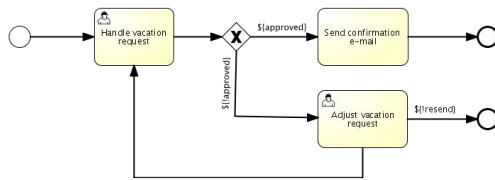
- Workflow Logic need not to be defined separately per Job

- Generic Workflow Logic reduces complexity

- Workflow Navigation is defined by Job Details

- Workflow-Engines also are used for SFDC

→ **Workflow-Engines are fundamental core components of modern MISes**

Additional features provided by some of our members systems:

ZIP Packaging:
- Both job and corresponding references are packaged in one archive
- Mainstream technology (in contrast to MIME)
- Bandwidth optimization by compression
- Structured data holding

WebToPrint Interface:
- Standardized WebShop Integration
- Cross company communication (SAP / ERP)
- Cloud Computing (SaaS)

…some more features also can be discussed.

→ **Standardization of commonly used features and technologies in graphic arts industry.**

➢ **Some fundamental concepts of JDF are no longer required.**

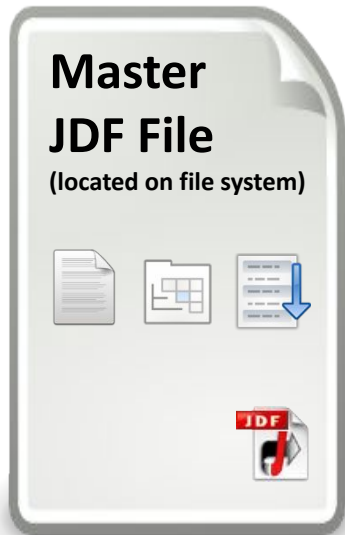➢ **JDF is unnecessarily complex for current requirements.**

Modifications needed to meet members requirements with JDF

MODIFICATIONS NEEDED

Master JDF File
(located on file system)

Implementation Specific Details should be removed:

- Master JDF per Job
- Spawn and Merge
- Nested JDF Nodes
- Workflow Logic
- Job History
- ….

→ **The technical JDF Concepts do no longer meet modern systems requirements.**

Modifications in JDF Schema
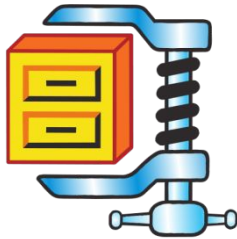
JDF as pure Information Interchange Technology:

- Reduction of Complexity
- Easing Learning Curve
- Adoption to mainstream XML Technologies (XPath, XML Editors, Schema, XSLT…)

→ **Nowadays JDF is used as pure Information Interchange Technology**

Introduction of the **ZIP** packaging format.

Advantages over MIME:

- ZIP is supported by many tools and libraries
- Compression saves bandwidth
- Structured data holding
- …

→ **Packaging simplifies data communication between two parties.**

➢ **The Modifications needed are fundamental for keeping JDF up-to-date**

➢ **A new major release is strongly recommended**

XJDF is the response to modern implementation needs.

RESPONSE TO MODERN CONCEPTS

XJDF as Major Release

- XJDF is the codename for JDF 2.0

- XJDF meets modern requirements and needs

- XJDF Includes all modifications listed before

- XJDF retains most JDF semantics

- XJDF and JDF 1.x can coexist

- XJDF is designed based on our members experiences (almost 15 years)

→ **XJDF is CIP4s response to modern changes and requirements.**

XJDF aims to:

- Enable dynamic changes

- Simplify implementations

- Reduce variation

- Remove implementation specific details

- Retain the semantic structures

- Enhance Compatibility with standard XML and XML Tools

→ **JDF 2.0 is a major redesign that takes a decade of experience into account.**

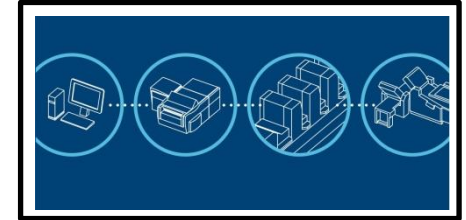The XJDF Specification Draft and further samples are available in CIP4 Wiki:

→ *https://confluence.cip4.org/display/PUB/XJDF*

→ **XJDF Specification and JDF 1.x Specification are based on a common Master Document and can be maintained in parallel.**

Online Printer

Workflow System

WebToPrint ICS

- Proof of Concept with regards to the cooperation between FLYERALARM and a major Workflow System

- Minimal effort to implement interface

- System is now online for 6 Month

- Connection is based on CIP4 WebToPrint Draft ICS

- ZIP Packaging has been also proofed successfully

→ **FLYERALARM has been successfully connected to a major Workflow System.**

➢ **XJDF is the response to modern needs and requirements**

Integration through Cooperation

NEXT ACTIONS

Publish Pre-Release Versions

- Publish XJDF Pre-Release

- Publish WebToPrint ICS Pre-Release

Further Developments

- Technology Development in XJDF Working Group

- XJDF Libraries and Documentation in T&I Working Group

- Increase number of Prototypes
(especially in WebToPrint)

Let's go !!