Color Servers: the Quest for Consistent and Predictable Color

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What *is* a Color Server?

- A standalone color management application for converting job files (usually PDFs) to optimize color matching and print quality

- Found in prepress departments

- Has have enhanced features not found elsewhere

- Operates automatically, at high speed; converts entire PDF in a single step

- Typical examples: Alwan Color Hub, ColorLogic ZePrA, ORIS Press Matcher

- *Quasi-* or integrated color servers: Workflow Color management tools—Kodak Prinergy ColorFlow, Heidelberg Prinect Color Toolbox, Esko Color Engine Pilot

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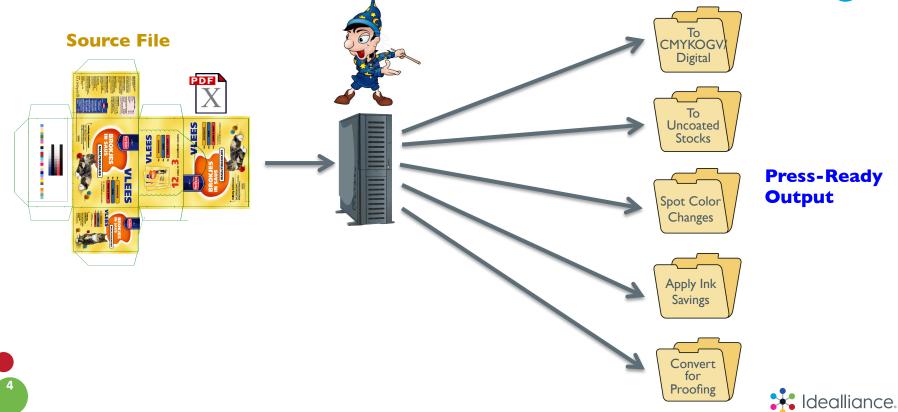# When are Color Servers Most Useful?

- When trying to match color across different print platforms—press, ink, substrate color, screening, other variables that affect color.

- When trying to optimize color on different substrates

- When jobs contains a mix of object types: vector and image, process and spot color, e.g., in **packages!**

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Color Servers: Versatility, Speed

Source File

Press-Ready Output

To CMYKOGV/Digital

To Uncoated Stocks

Spot Color Changes

Apply Ink Savings

Convert for Proofing

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Why Not Just Print to G7 or Other Spec and be Done?

- Original files are usually prepped for default print conditions, e.g., US Web Ctd SWOP. Actual print condition is usually different. *Files must be optimized*.

- When color differences are "3D"— e.g., overprint, ink hue—color management is needed

- Special treatments may be needed, e.g., changes in black generation, highlight adjustments print order, and many others

- Complex arrangements of vector and image elements may be involved

- Spot colors may need to be converted (e.g., digital or ECG printing)

- When jobs contains a mix of object types: vector and image, process and spot color, e.g., in **packages!**

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Typical Color Server Operations

- **Color space transforms/normalization:**
  - RGB-RGB
  - RGB-multicolor
  - Multicolor-RGB
  - CMYK-CMYK
  - Multicolor-CMYK

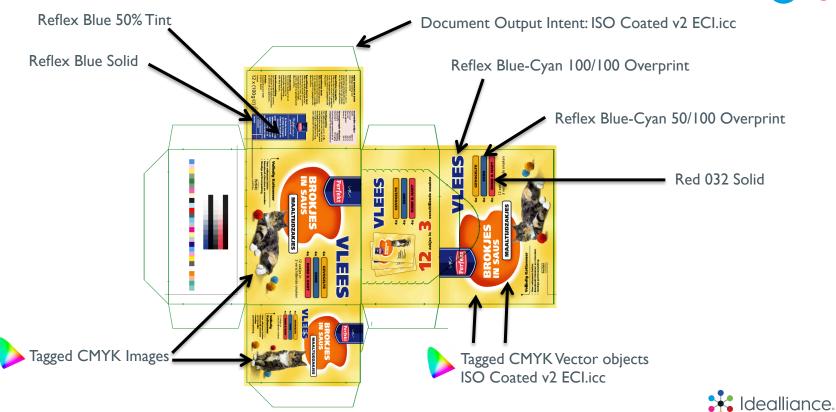- **Embedding profiles**

- **Total area coverage (TAC) adjustment**

- **Spot color replacement**

- **Spot color conversion (to CMYK or multicolor)**

- **Transparency flattening**

- **Tonality adjustment** (TVI, highlight bumps/ cutbacks)

- **Proofing conversion** (e.g., multicolor to CMYK inkjet)

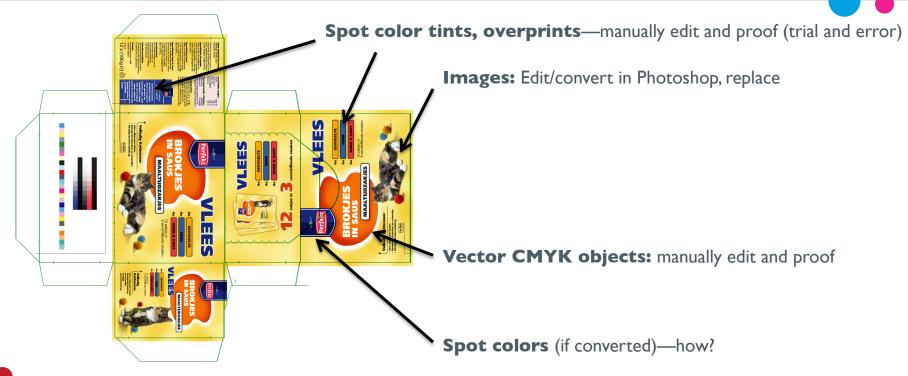- **Color generation adjustment** (black, multicolor; ink optimization)

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Source Document Complexity

Reflex Blue 50% Tint

Reflex Blue Solid

Document Output Intent: ISO Coated v2 ECI.icc

Reflex Blue-Cyan 100/100 Overprint

Reflex Blue-Cyan 50/100 Overprint

Red 032 Solid

Tagged CMYK Images

Tagged CMYK Vector objects
ISO Coated v2 ECI.icc

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The *Status Quo*: Inefficient and Error-prone

Spot color tints, overprints—manually edit and proof (trial and error)

Images: Edit/convert in Photoshop, replace

Vector CMYK objects: manually edit and proof

Spot colors (if converted)—how?

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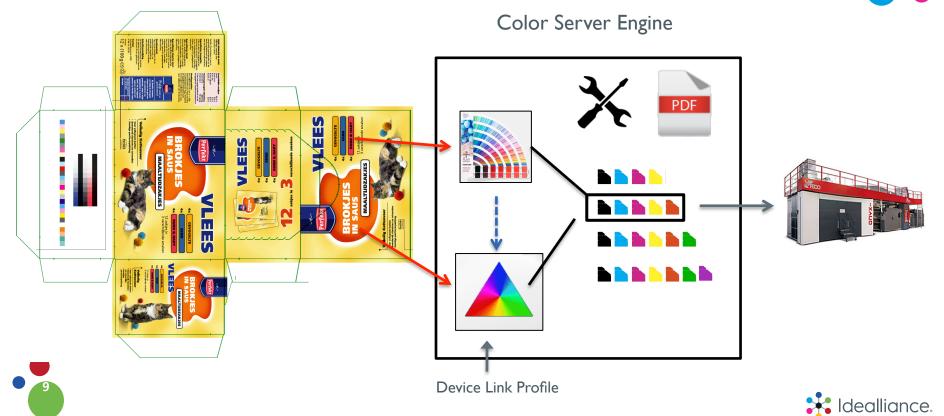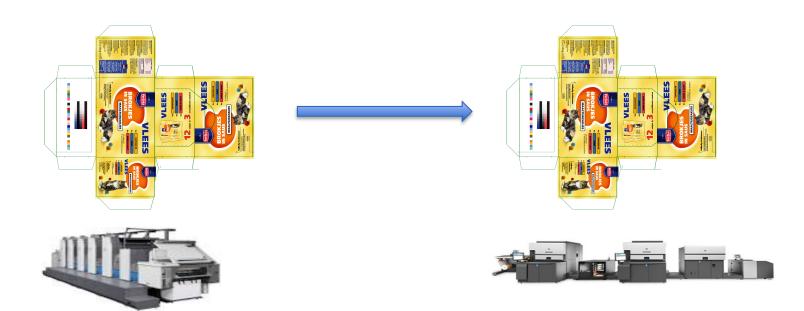
Dedicated Paths for Spot and Process Colors

Color Server Engine

Device Link Profile

So What's The Impact?

Testimonial: Sean Cox

Inland Packaging, La Crosse, WI

"As a busy and diversified label printer we have a stiff challenge maintaining color consistency. Matching output on offset, flexo, digital, and gravure presses, with multiple substrates and individual operator conversion techniques and preferences can be a recipe for unpredictability of results, production delays, and increased costs. Implementing a color server to standardize and automate our color management has been a real game changer for us. Now we need only to characterize our target press conditions and set up a queue, and the server takes over, handling even tricky jobs in seconds. Not reworking files in Illustrator and getting better accuracy is huge. Even a few minutes saved per job is a major improvement, and it can be a lot more than that. This has been a revelation."
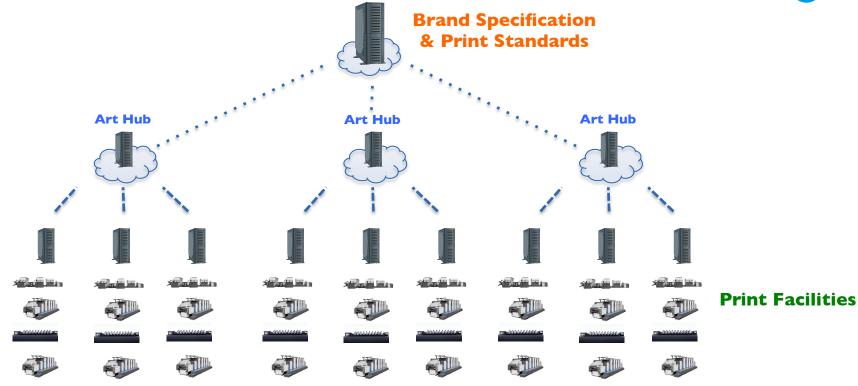
Color Servers in the Enterprise

Brand Specification & Print Standards

Art Hub

Art Hub

Art Hub

Print Facilities

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Why Should Brand Owners Care?

Color servers ...

- are an advanced application of color management.

- have special tools for handling complex package designs and special problems.

- typically adopt the latest standards and specifications (PDF-X4, CxF/X4, ISO 20654).

- provide consistent and predictable outcomes.

- like G7 certification, are a good indication of a cutting-edge prepress provider who cares about color quality and protecting brand identity.

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Thank you

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