#### Worldwide Distributed Production Prototyping Hard- and Soft-proofing

#### **Technological Downfalls and Possibilities**

Christian Schowalter Product Marketing Manager, EFI

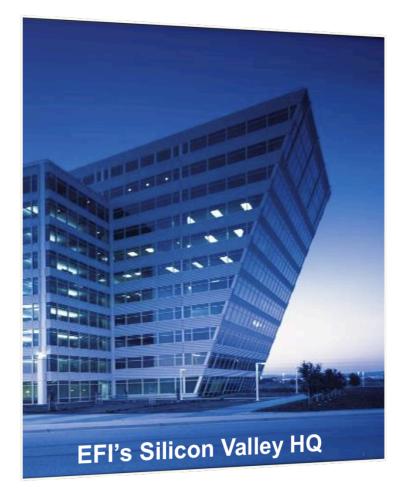


### Agenda

- EFI at a Glance
- Distributed Production
- Challenges in Color Reproduction
- Variables to Consider in Remote Scenarious
- Communication is KEY
- Cloud Solutions to Maintain Consistent Quality
- A Real Life Success Story
- EFI Web Control Center
- Distributed Proofing and its ROI



#### EFI At a Glance



- Based in Silicon Valley
- Technology company with a more than 20-year history of innovation
- Approximately 20% of revenue reinvested in R&D
- Over 1,000 people in R&D
- Fastest-growing technology company in the industry





#### **Our Mission**

EFI's mission is to lead the print industry's transformation from analog to digital color through best-in-class products, technology and services.



### **Our Three Areas of Business**





#### **Industrial Inkjet**

**Digital Inkjet Printers** 

- Wide & Superwide Display Graphics
- Label & Packaging Inkjet Printing
- Ceramic Inkjet Printing
- UV Digital Ink



#### **Fiery**

Digital Front End Appliance

- Enable Digital Print
- Color Management
- Variable Data
- High Productivity
- Mobile Print

#### Productivity Software

Business Process Automation Software

- MIS/ERP
- E-Commerce
- Workflow



# **Distributed Production a Reality?**



Brand owner



Agency



Pre-press







Printing house



### **Distributed Production a Reality?**





Brand owner



Printing house





Printing house





Pre-press



Agency



#### Printing house





### **Challenges in Color Reproduction**

#### Multiple stake holders in production process



Color communication between stakeholders is fundamental. Process color match is device dependent and challenging. Brand colors are essential but strongly device dependent as well.

### **Control Worldwide Environments**



 Evaluate every device, consumable and environment



# **Challenges in Color Reproduction**

- Colors are strongly substratedependent
- Designer picks solid-coated Pantone book
- Final printed product is unlikely to be produced on offset coated media
- Print process will demand different ink formula, and attributes



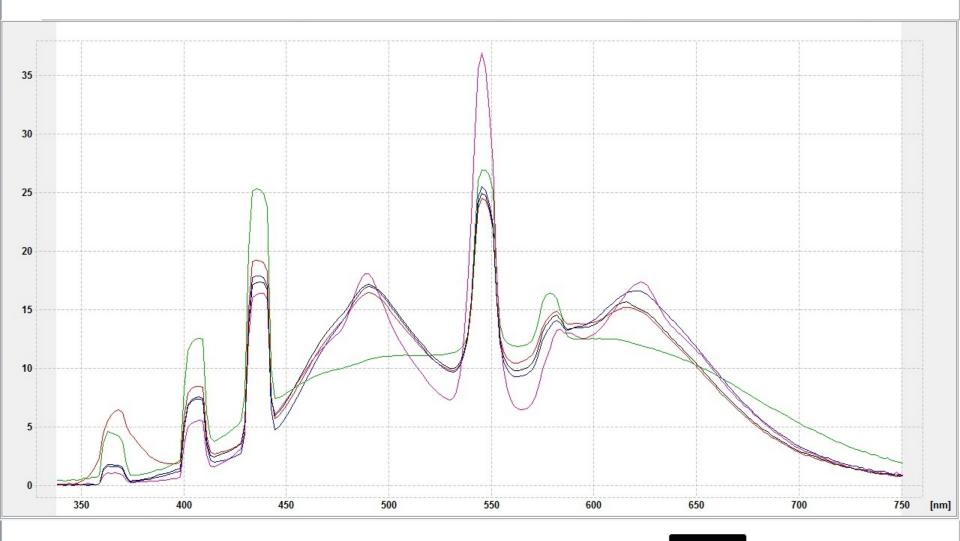
Here's the same ink on a variety of stocks.

# Lighting = the Source of all Color

- Without light, no color
- Probably the biggest influencer on color perception
- Change in D50 definition recently
  - ISO 3664:2000 -> ISO 3664:2009
- Different manufacturers will have different spectral curve
- Old bulbs will have different spectral behavior.



#### Spectral Curves of 4 Different Manufacturer's Light Sources Used in Print Production



Slide courtesy of JUST Normlicht





#### Lighting is the Sum of Light and Its Environment

#### Wrong

#### Correct





Image source: Fogra

Slide courtesy of JUST Normlicht





#### Different Ink Sets Can Create Differences

- Even with tightest tolerances and closest dE match
- Visual difference can occur if different substrates or ink sets are used

Ink Set

Α



Ink Set

### Standardize on One Measurement Device



- Standardization on one measurement device fundamental
- No color communication possible with different metrics
- Calibration and maintenance of devices important

Control, Control, Control !!!



# Standardize, Standardize and Standardize

- Standardize to
  - Same light source and environment
  - Same measurement device
  - Same metrics
  - Same media
  - Same ink set
- Same media and ink set in production often not possible
  - Higher visual tolerances need to be accepted
  - Routinely visual cross check necessary to adjust tolerances or targets
  - Local hardcopy proof still necessary to guaranty visually consistent production
  - Printing to the numbers only possible on same media and ink set



# Tolerances Need to be Tight

- Tolerances and control need to be tight to secure closest visual match
- Be realistic about achievable tolerances
  - Under 1 dE is not reproducible in production (a reasonable cost)
- More important to to have accurate, consistent and ongoing control than tight tolerances

# The Recipe for Successful Distributed Production

- Standardize
- Tight, but realistic, tolerances
- Local champion
- Communicate
- Control
- Control again
- Start from the top

#### Color is a process, not a event



# **Communication is Key**



**Pre-press** 

Just because we know we were able to produce an accurate proof once, does not mean it is repeatable





Printing house



- Is the engine turned on?
- Was it recently calibrated?
- Is the right media loaded?
- Are all nozzles firing?

- Is the ink loaded?
- Is the ink expired?
- No one changed the settings, right?



#### Without Communication, Errors Happen

#### **Control Strip Should Show This Error**

• Original



#### Clogged Cyan Nozzle



## Without Communication, Errors Happen Standard Control Strip will NOT Show This Error

• Original



#### Spot Color Defined Incorrectly



#### Without Communication, Errors Happen Standard Control Strip will NOT Show This Error

• Original



 Bad RIP Settings – Disappearing Artwork



#### **Communication is Key**



Pre-press





Printing house



- Automated communication system needs to take over color communication
- Every job needs to be measurable and trackable
- Automated processes to reduce failure rate
- Secure and save data management



#### **Cloud Production and Proof Submission**



- Job was sent
- Job was received
  - Job printed

- Job measured correct
  - Job was annotated
  - Job was accepted



# General Requirements for a Cloud System

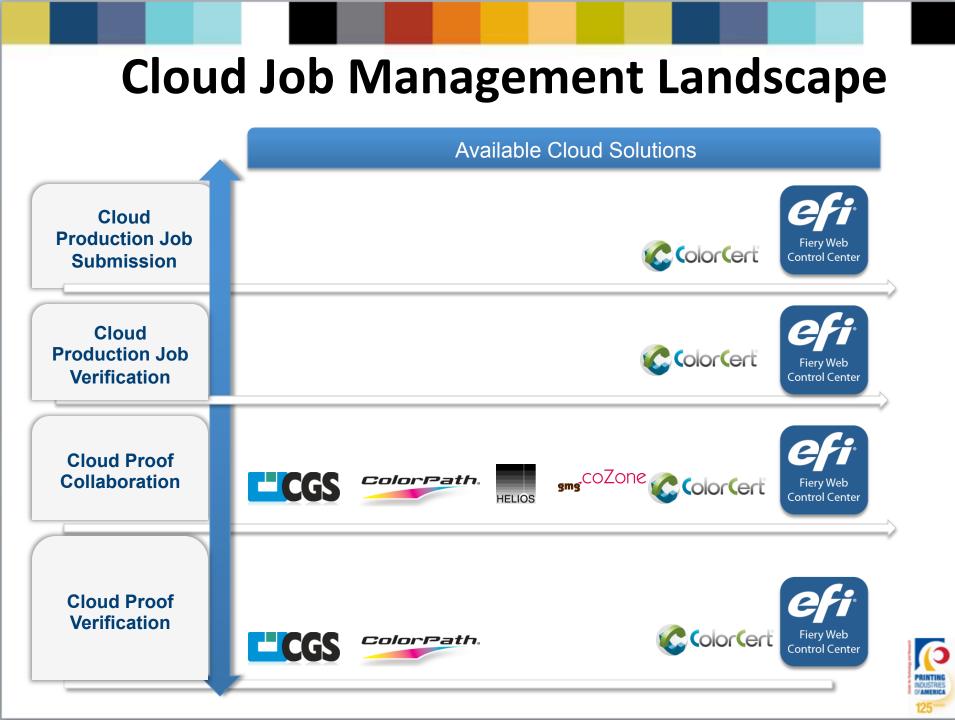
- Sophisticated user management
  - Secure setting and workflows
  - Ensure IP is not shared with wrong client
- Rock-solid hosted system with solid backup
- Custom rules and standards
- 100% control of print job
  - Never lose tracking and control of supplied job



#### **Cloud Job Management Requirements**

	Commercial	Packaging	Wide Format
Cloud Production Job Submission	<ul><li>Plate curves</li><li>Tolerances</li><li>Post press</li></ul>	<ul> <li>Anilox rollers</li> <li>Color definition</li> <li>Screen per color</li> <li>Pressure</li> <li>Cut path</li> </ul>	<ul> <li>Curing settings</li> <li>Print mode</li> <li>Resolution</li> <li>Cut path generation</li> <li>Inline cutter support</li> </ul>
Cloud Production Job Verification	<ul> <li>Offline measurements</li> <li>Inline measurements</li> <li>G7 support</li> <li>ISO support</li> </ul>	<ul> <li>Offline measurements</li> <li>Inline measurements</li> <li>G7/ISO support</li> <li>Custom standard</li> <li>Spot color support</li> </ul>	<ul> <li>Offline measurements</li> <li>Inline measurements</li> <li>G7/ISO support</li> <li>Custom standard</li> <li>Spot color support</li> </ul>
Cloud Proof Collaboration	<ul> <li>Job submission</li> <li>Annotation</li> <li>Approval process</li> </ul>	<ul> <li>Custom standards</li> <li>Centralized Spot Color Library</li> <li>Advanced job settings</li> <li>White/ Clear/ Silver/ Cutting annotation</li> <li>Approval process</li> </ul>	<ul> <li>Print mode</li> <li>Resolution</li> <li>Cut path generation</li> <li>Inline cutter support</li> </ul>
Cloud Proof Verification	<ul> <li>Offline measurements</li> <li>Inline measurements</li> <li>G7 support</li> <li>ISO support</li> <li>Trending</li> </ul>	<ul> <li>Offline measurements</li> <li>Inline measurements</li> <li>G7 support</li> <li>ISO support</li> <li>Trending</li> <li>Grading system</li> </ul>	<ul> <li>Offline/inline</li> <li>G7 support</li> <li>ISO support</li> <li>Trending</li> <li>Machine error statistics</li> <li>Ink usage</li> </ul>





# **Cloud Job Management Landscape**

Cloud collaboration



Cloud production/proof submission



Cloud production/proof verification









# Cloud Job Management Landscape

Some of the available cloud solutions



- Evaluate your needs
- Differentiation between, production and proof verification, collaboration and job management



#### DCWV, Inc. Case Study

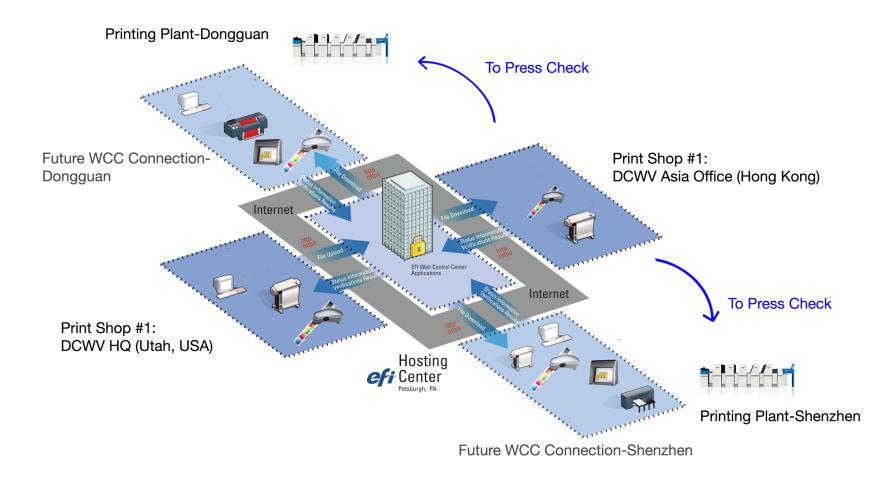
Mike Strickler, MSP Graphic Services

- Customer: DCWV, Inc.
- Status: Privately held
- **Profile:** Wholesale supplier of hobby materials and home decor items.
- Offices: Provo, Utah; Hong Kong
- Production: China
- Major customers: Walmart, Target, Joann's
- Print shops: 2
- Active users: 5
- **Proof throughput:** 40 proofs/week





DCWV WCC System Configuration





**Cloud Distribution Successes:** 

- Dramatic compression of production cycle
- Elimination of proof shipping costs
- Accurate, dependable, *verified* proofs: what's seen in Utah is seen in China
- More predictable, consistent product, faster press OKs

#### **Remote Proofing Challenges:**

In remote site:

- Minimal IT resources
- Language difficulties
- Power failures

In host office:

Maintaining supervision of remote facility





#### **Conclusions/Recommendations:**

- Remote proofing is *local* proofing, only farther away!
- Make no assumptions about remote facilities or their management.
- Treat all shops as your own and control everything: consumables, software, hardware, services, *and* personnel, at all sites.
- Remember that at the other end are real machines and real people, and things do go wrong.
- No technology replaces clear communication and chain of command.
- Remote proofing amplifies good practices, and bad ones.

Thank you





# **EFI Web Control Center**

#### **One Solution**

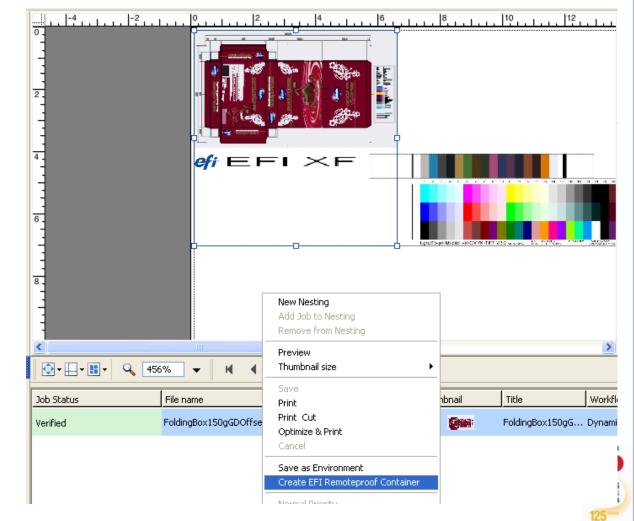
- Web based application lending itself to
  - job distribution between sites using Colorproof XF or Fiery XF
  - centralized monitoring of XF software, printers and output
- Acts as the link between any geographically remote site participating in a supply chain

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#### **1. Create remoteproof container**

- Job will be uploaded to EFI Web Control Center
- Job can be automatically distributed to several sites or the user chooses the location manually



#### 2. Jobs uploaded appear in the job list

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#### 3. Distribution list can be used to push jobs out to several sites

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#### 4. Job feedback provided by XF

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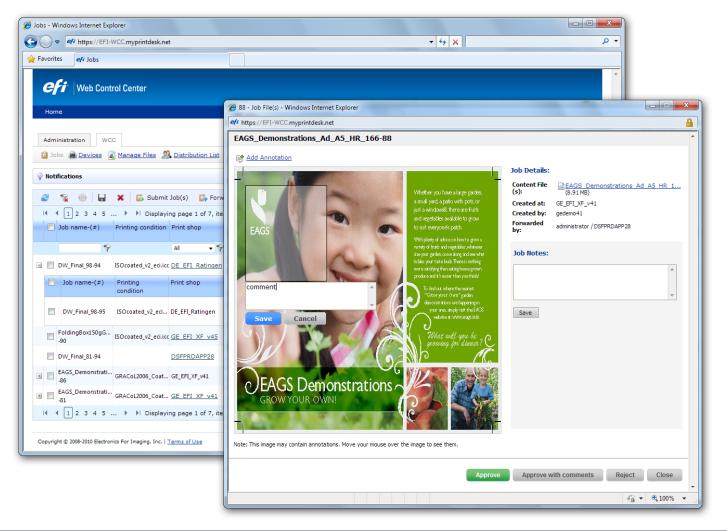


#### EFI Web Control Center Workflow 5. Measuring values and job status will be send back to EFI Web Control Center

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#### 6. User can approve/reject jobs and can add annotations





#### 7. Administrator can run reports to analyse sent jobs

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# EFI Web Control Center

#### **Key benefits**

- Web-based application
- Low investment due to ASP model, hosted by EFI

WCC

- Flexible job data upload and distribution
- Fully automatable onsite proofing / printing
- Significant reduction of
  - Job turnaround time
  - Shipping cost
- Efficient control of the entire Colour Supply Chain



#### Remote Proofing Saves Shipping Costs

Use Case:

- 2 shipments of 10 proofs each week to Hong Kong
- Labor, printing, packaging:
- Shipping/duties (2-day):
- Shipping/duties (overnight):



\$100

\$300

\$1300



# What's the Real ROI of Remote Proofing / Production

- Saving shipping cost: \$50k
- Saving a day in go to market : priceless
- Being in the movie industry and eating \$50k worth of shrimp: overrated





### Thank you for your time and attention!

www.efi.com/FieryXF

