Blended Distance Learning in the Academy Program
Purpose

• To share findings and recommendations from the recent CCNA Blended Distance Learning Pilot Study

• To share Next Steps with BDL in the Cisco Networking Academy Program
What is BDL?

E-learning refers to

• Education that is enhanced by or delivered via the Internet

Blended Distance Learning (BDL) refers to:

• Instructor facilitated
• Combination of in-person and remote learning
• Loosened classroom constraints of space and time
• Prepares students to meet all established completion requirements
From 1996 to 2004 …

The Academy Program developed an increasingly sophisticated blend of in-person instructor facilitation, hands-on lab experiences, online curriculum, online assessment, online program management, online instructor community, remote-access to lab equipment, and simulations.

The key differentiator of the Academy Program through all of this has been the empowerment of the local instructor via Internet-enhanced technologies and the in-person hands-on laboratory work emphasis over the course of a semester, not a 100% remote or self-paced model.
From 1996 to 2004

Student outcomes from using this teaching and learning model were tens of thousands of people able to design, install, operate, and troubleshoot real networks

So we have been doing e-learning, but customer needs were for expansion of CCNA availability in terms of space (remote locations) and time (24/7 learning access)
BDL CCNA Pilot Study Results
CCNA Student Pilots

<table>
<thead>
<tr>
<th>Education level</th>
<th>Pilot Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 high school</td>
<td>25 CCNA1</td>
</tr>
<tr>
<td>15 2-3 year institution</td>
<td>12 CCNA2</td>
</tr>
<tr>
<td>5 4 year institution</td>
<td>10 CCNA3</td>
</tr>
<tr>
<td></td>
<td>2 CCNA4</td>
</tr>
</tbody>
</table>

- 23 initial CCNA pilots; 19 used in data analysis
- Only one pilot outside U.S. and Canada
- Pilots ran from Jan. 1, 2004 to Dec. 31, 2004
- Comparison classes selected from same institution, same instructor, curriculum version 3.x
Evaluation/ Documentation Tools

- Student Survey (end of each course)
- Instructor Survey (end of each course)
- Field staff questionnaires (end of each month)
- Virtual meetings (once a month)
- Monthly Implementation Form (end of each month)
- Class Progress Form (end of class)
- Final exam scores, module exam scores, skills exam scores, course feedback scores, overall course grade
Vision of the Student

CCNA1 Module Exam Scores

Final Exam Scores

Satisfaction

Final Exam Scores
Vision of the Student

- Students in the BDL pilots learned the CCNA content as well as students in the In-person classes, and feel as confident in their learning.
- BDL students were as satisfied with the course as In-person students.
- Students most successful in the BDL classroom were: motivated, able to work independently, and had some previous networking experience.
- Retention was slightly worse in BDL classes, which is consistent with existing research.
- Instructors in the pilots recommended helping struggling students with: mentoring, study groups, face-to-face help, individual communication.
Vision of the Instructor

BDL Instructors indicated they spent more time interacting with individual students in BDL classes.

<table>
<thead>
<tr>
<th>Course</th>
<th>Rating</th>
<th>BDL</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCNA1*</td>
<td>4.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCNA2</td>
<td>3.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCNA3</td>
<td>4.60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- I liked the blended distance learning format.  
- I liked the blended distance learning format *better than the traditional 100% in-person format*.  
- I would teach another course in this blended distance learning format.  

1) Strongly Disagree; 2) Disagree; 3) Neutral; 4) Agree; 5) Strongly Agree
Vision of the Instructor

• Students rated instructors highly in the BDL format and felt they were critical to their success.

• Instructors indicated they were satisfied with the BDL format.

• There are not significant changes to teaching methods, just the tools used to teach.

• Instructors should have experience with both the course being taught and the BDL tools before offering a CCNA BDL course.
In-person class time was used strategically to emphasize labs, conduct skills exams, interact with the instructor, and work with other students.
Vision of Teaching and Learning

- Desire for interaction was reasonably high, and a plethora of communication methods for facilitating interactions were used.
- Students indicated that doing in-person labs significantly contributed to their success in the course.
- There were commonalities across pilots in the types of tools used, including tools to offer labs remotely.
- Dial-up connectivity appears to be sufficient for BDL CCNA as it was offered.
NetLab

Remote Lab

NETLAB allows students to get more lab time and get the maximum use of your lab equipment.

NETLAB provides scheduled 7x24 access to lab equipment. The session sharing feature supports instructor led classroom lectures, team collaboration, and individual student practice. Students can be grouped into teams and work together from different locations.

NETLAB also allows a student to cycle the power on a device, so even password recovery exercises can be conducted remotely.

The Academy Edition license allows shared access with other Networking Academies and cost recovery.

http://www.netdevgroup.com/
Vision of Assessment and Evaluation

- Approximately half of the pilots used module exams in a summative fashion while half used them in a formative fashion.
- Final and skills exams were required to be proctored.
- Most pilots monitored student progress with exam scores.
- Success of BDL classes may be monitored using student success measures, such as final exam grade and course pass rates.
Summary and Recommendation

• Students are able to learn CCNA content in a BDL environment

• Students and instructors are satisfied with BDL courses

• The BDL team recommends offering the option of CCNA and CCNP in a blended distance learning format
Welcome, Pilots!

- Please introduce yourself
- Give a brief description of your pilot model, including your location, educational level of students, and distance technology tools you used
- Words of wisdom to others who may choose this option
BDL in the Future
Where do we go from here?

Approval has been given for BDL rollout for CCNA and CCNP student classes with

• Global BDL guidelines with theater specific differences

• Academy Connection “BDL” class environment added for CCNA, CCNP student classes

• Monitoring of student proficiency and satisfaction as well as rate of implementation
## Timeline for Student BDL CCNA/CCNP

<table>
<thead>
<tr>
<th>Month</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>June</td>
<td>Management Approval and finalizing rollout plans</td>
</tr>
<tr>
<td>July</td>
<td>Adaptations to AC</td>
</tr>
<tr>
<td></td>
<td>Monitoring Plan for BDL</td>
</tr>
<tr>
<td>August</td>
<td>US Communication of BDL Option and Guidelines</td>
</tr>
<tr>
<td>August</td>
<td>US Academies may offer BDL CCNA/CCNP student classes</td>
</tr>
</tbody>
</table>
Global BDL Guidelines

- CCNA/CCNP Academy has good or excellent status as existing Academy
- Must demonstrate understanding what is required to teach and support distance learning
- All courses must have a blended component with recommendations for novice and intermediate with instructor discretion for advanced learners
  - CCNA 1: 24 hours in-person
  - CCNA 2: 16 hours in-person
  - CCNA 3: 8 hours in-person
  - CCNA 4: 8 hours in-person
Global BDL Guidelines, cont.

CCNP 1 – 4: 8 hours in-person

- Proctored online final with authentication process if instructor is not the proctor
- Same QAP time and quality measurements
- Cross-theater offerings require pre-approval
- Instructors must designate class environment as “blended distance learning”
## Future Plans for BDL Delivery

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Instructor</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCNA</td>
<td>Pilot in fall 2005</td>
<td>IN PROCESS Available Fall, 2005</td>
</tr>
<tr>
<td></td>
<td>Introduction of various instructor models</td>
<td></td>
</tr>
<tr>
<td>CCNP</td>
<td>Available Today</td>
<td>IN PROCESS Available Fall, 2005</td>
</tr>
<tr>
<td>Security</td>
<td>Pilot in fall/winter 2005</td>
<td>No plans</td>
</tr>
<tr>
<td>ITE</td>
<td>No plans</td>
<td>UNDER REVIEW</td>
</tr>
<tr>
<td>Java</td>
<td>Available Today</td>
<td>UNDER REVIEW</td>
</tr>
</tbody>
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<tr>
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<th>Student</th>
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</thead>
<tbody>
<tr>
<td>Unix</td>
<td>Available today</td>
<td>Under Review</td>
</tr>
<tr>
<td>Wireless</td>
<td>Under Review</td>
<td>No plans</td>
</tr>
<tr>
<td>Web</td>
<td>Available today</td>
<td>No plans</td>
</tr>
</tbody>
</table>