

Capitolo 2°

Aggiornamento dei database geografici

Aggiornamento dei DB territoriali

- 2.1 – Introduzione
- 2.2 – Aggiornamento alfanumerico
- 2.3 – Aggiornamento di zona
- 2.4 – Aggiornamento globale
- 2.5 – Mescolando due layer
- 2.6 – Estensione di copertura
- 2.7 – Conclusioni

2.1 – Introduzione

- Evoluzione del mondo reale
- Evoluzione del modello (mentale) che abbiamo sul mondo reale
- Correzione degli errori
- Ciclo di vita dei dati

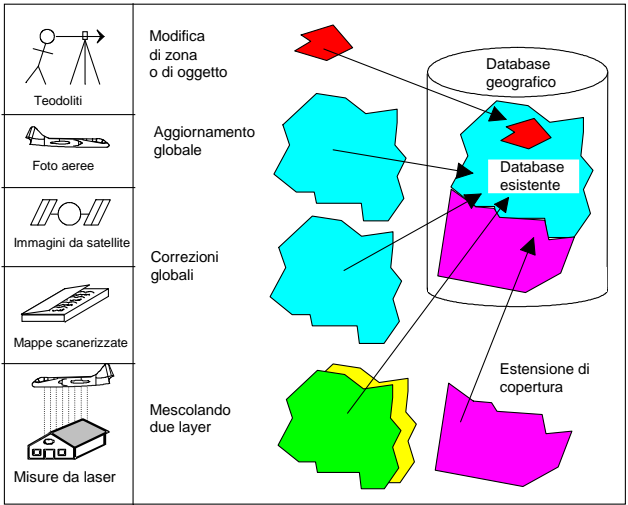
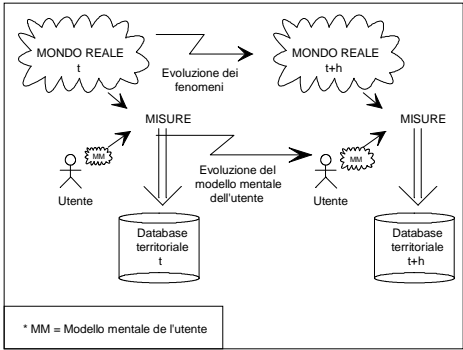
Importanza dell'aggiornamento

- Errore nelle decisioni
- Costo degli errori
- Costo dell'aggiornamento : 10 - 15 %
- Aggiornamento in tempo reale

Tecniche per l'aggiornamento

- Foto aeree
- Nuove misure (teodoliti)
- Mappe scannerizzate

Evoluzione dei fenomeni
Evoluzione dei database



2.2 – Aggiornamento alfanumerico

- Utilizzando SQL o PL/SQL

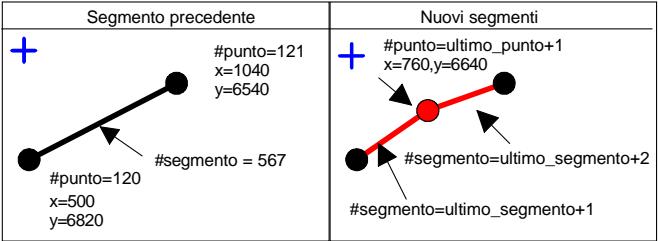
Esempino

- PARTICELLA (#particella, #segmento)
- SEGMENTO (#segmento, #punto1, #punto2)
- PUNTO (#punto, x, y)

Con SQL

- UPDATE PUNTO
SET x = 4567, y = 7890
WHERE #punto = 2537;

Introduzione di un nuovo punto in un segmento



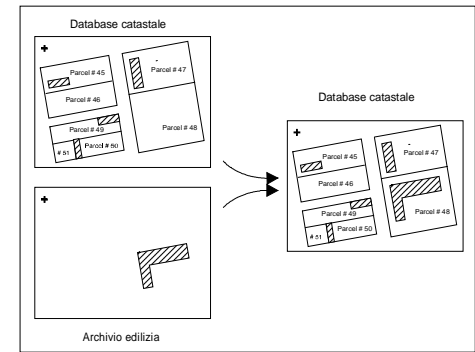
Due sequenze: seqpunti, seqsegmenti

- DELETE FROM SEGMENTO
WHERE #segmento=657;
- INSERT INTO PUNTO VALUES
(seqpunti.nextval, 760, 6640);
- INSERT INTO SEGMENTO VALUES
(seqsegmenti.nextval, 120, seqpunti.currval);
- INSERT INTO SEGMENTO VALUES
(seqsegmenti.nextval, 121, seqpunti.currval);
- COMMIT

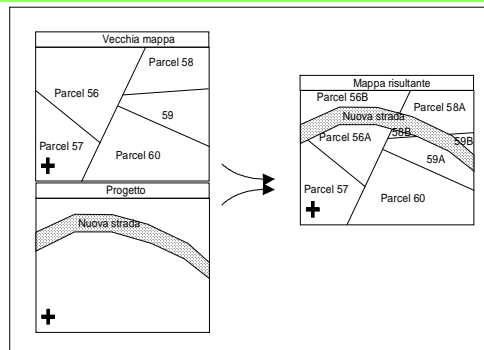
2.3 – Aggiornamento di zona

- Senza modifica al vicinato
- Con modifica al vicinato

Aggiornamento senza modifiche



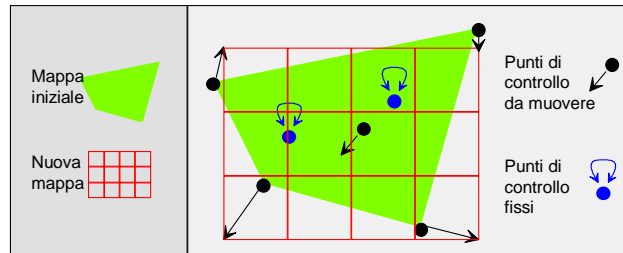
Aggiornamento con modifiche topologiche degli oggetti adiacenti



2.4 – Aggiornamento globale

- Trasformazioni elastiche
- Ricerca degli errori
- Aggiornamento con foto aeree

Rubber-sheeting (trasformazione elastica)



Formule di rubber-sheeting

- Rubber-sheeting lineare

$$X = A \times x + B \times y + C$$

$$Y = D \times x + E \times y + F$$

- Rubber-sheeting bilineare

$$X = A \times xy + B \times x + C \times y + D$$

$$Y = E \times xy + F \times x + G \times y + H$$

- Coordinate della vecchia mappa: x, y
- Coordinate della nuova mappa: X, Y

Esempio per foto aeree

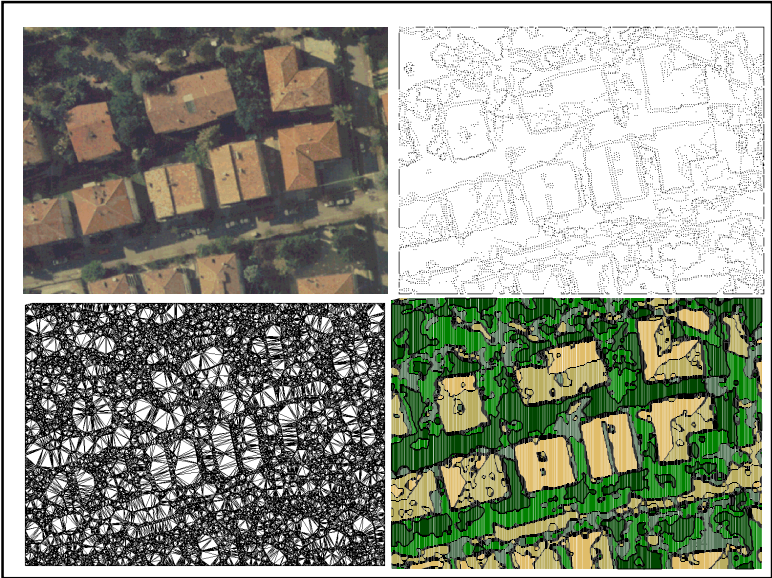
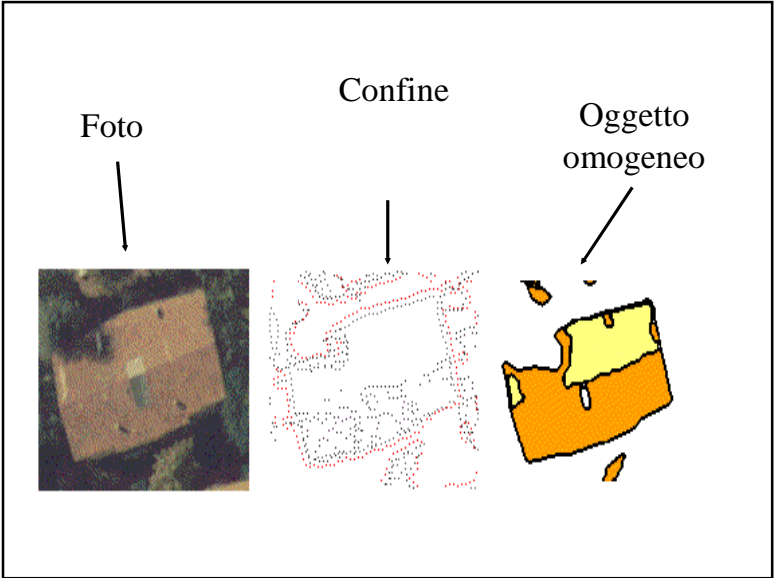
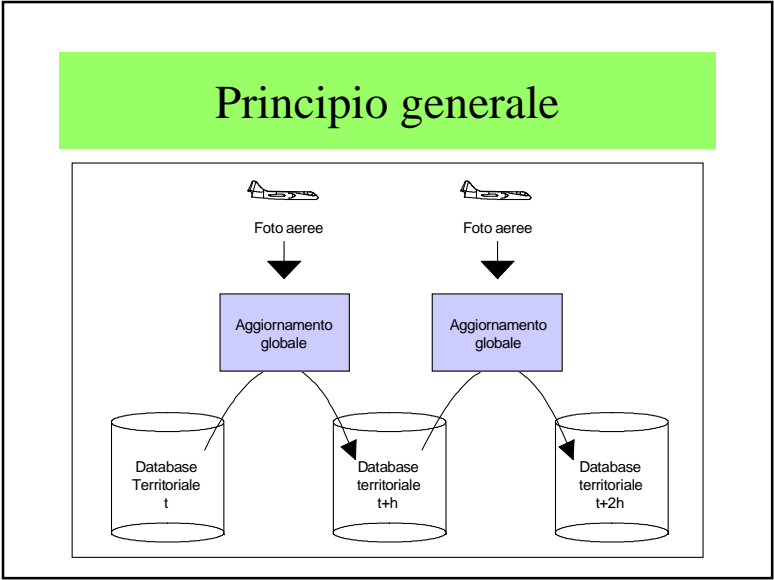


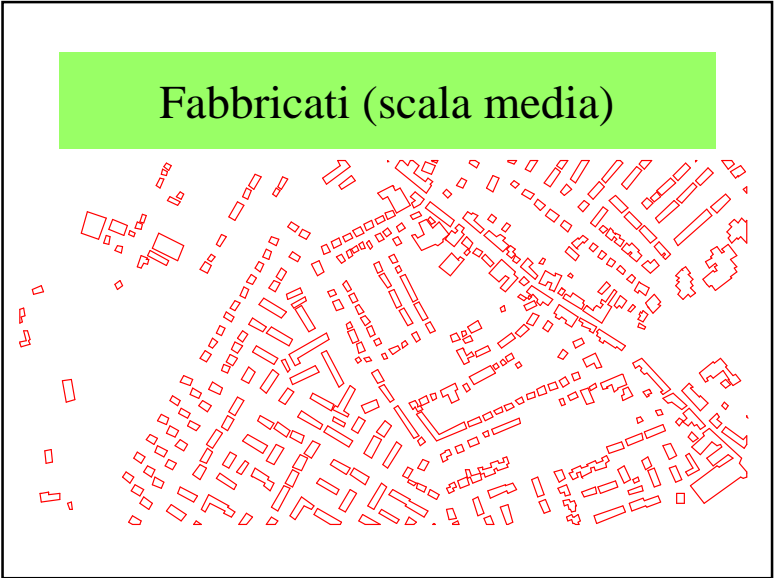
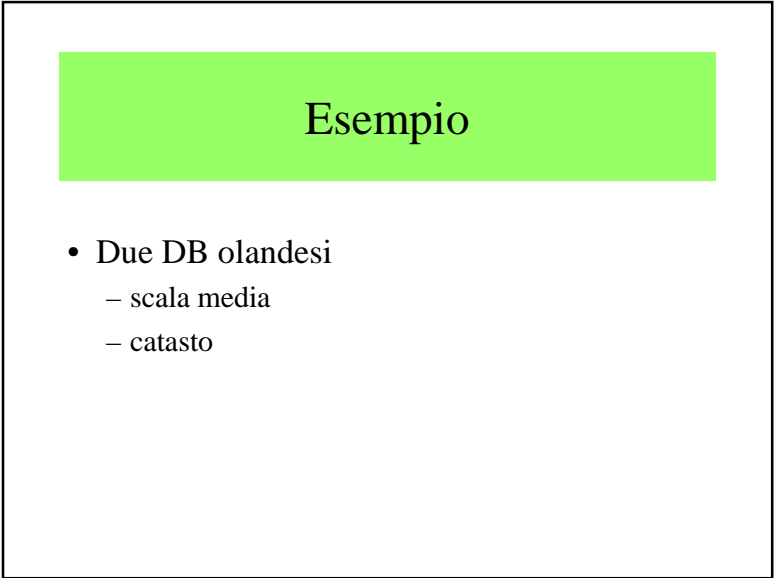
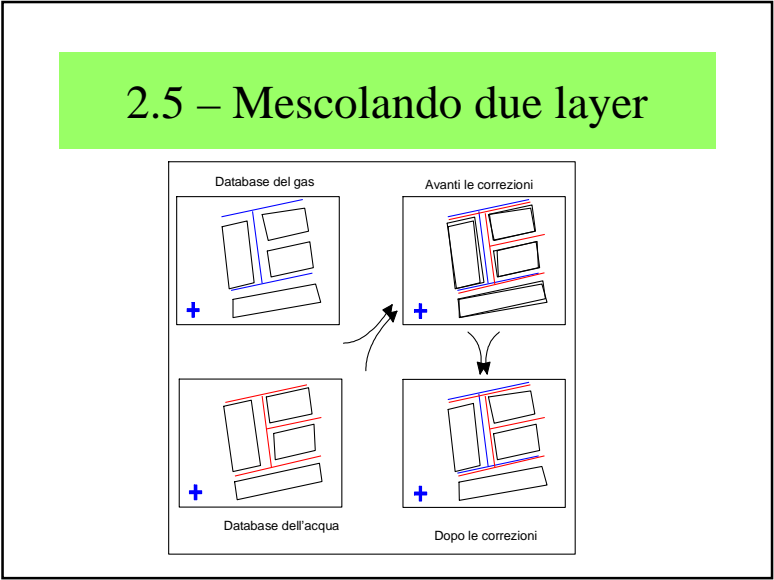
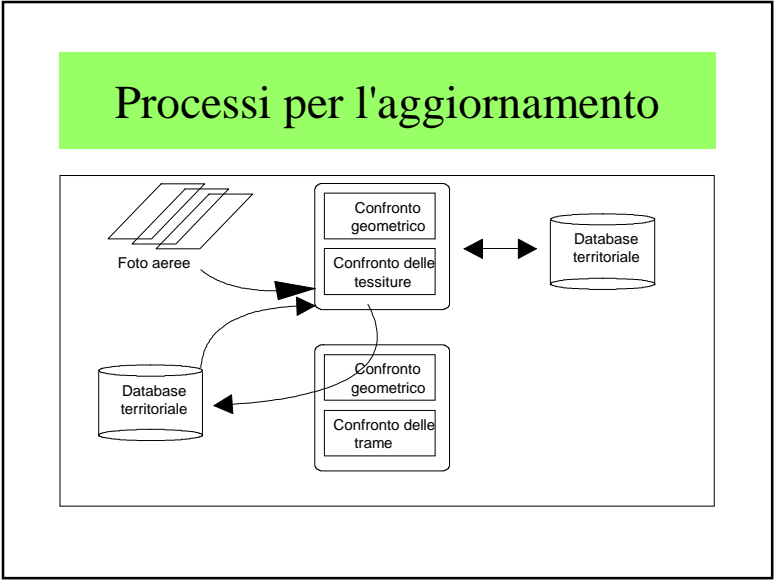
Prima

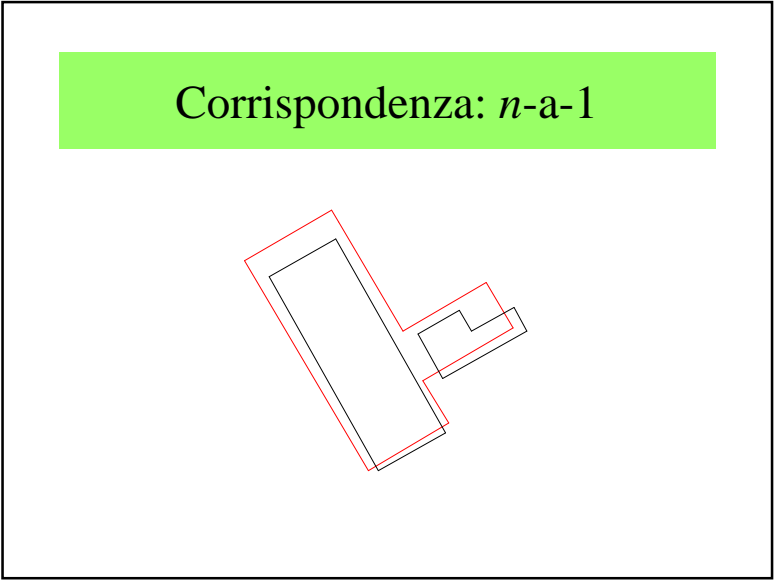
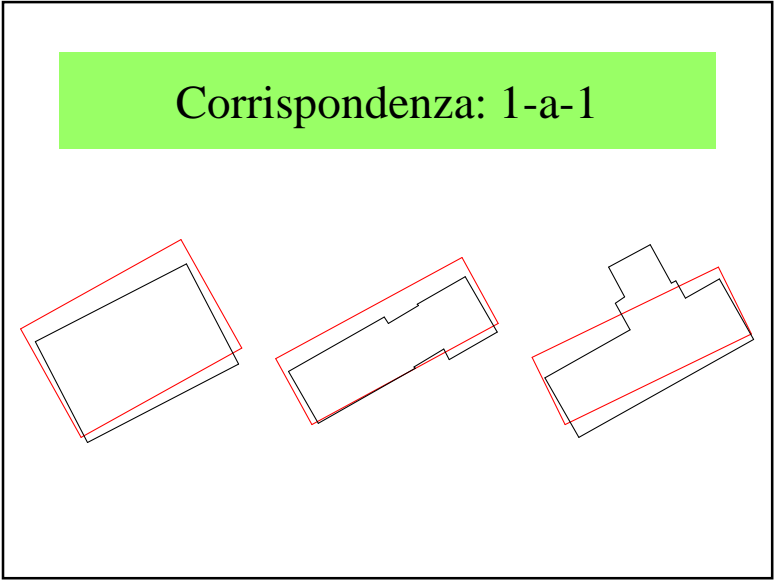
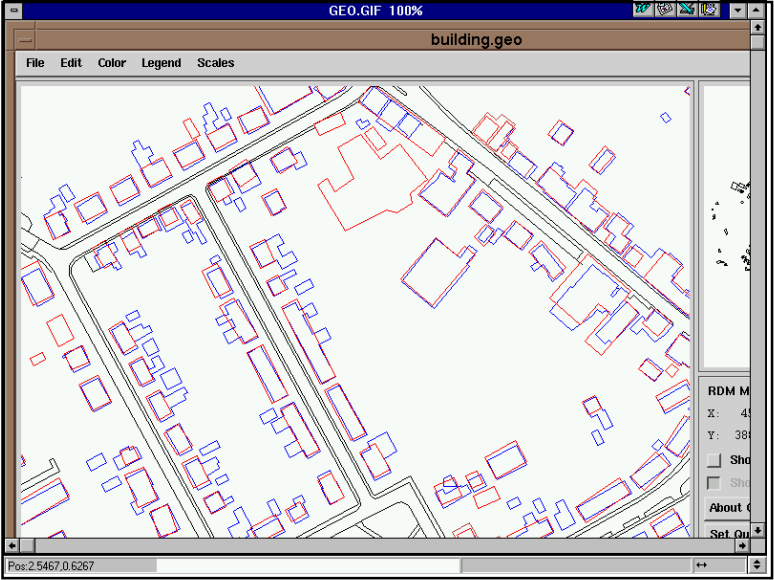
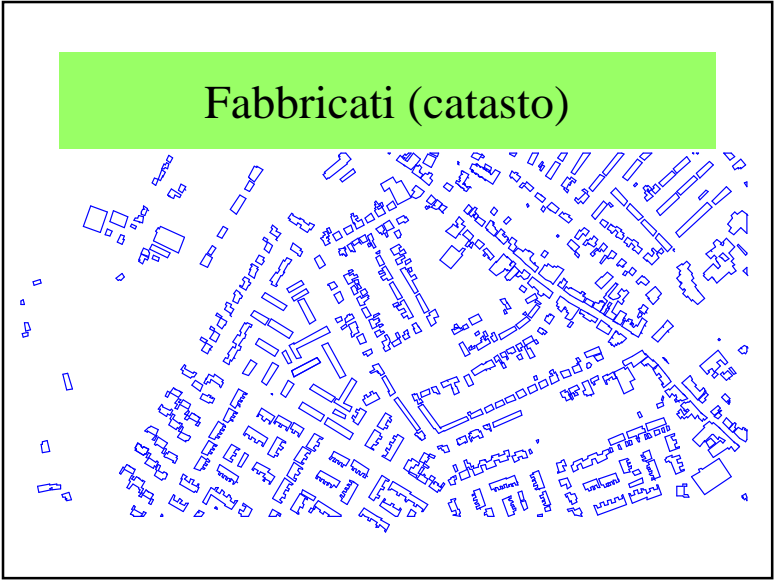
Dopo

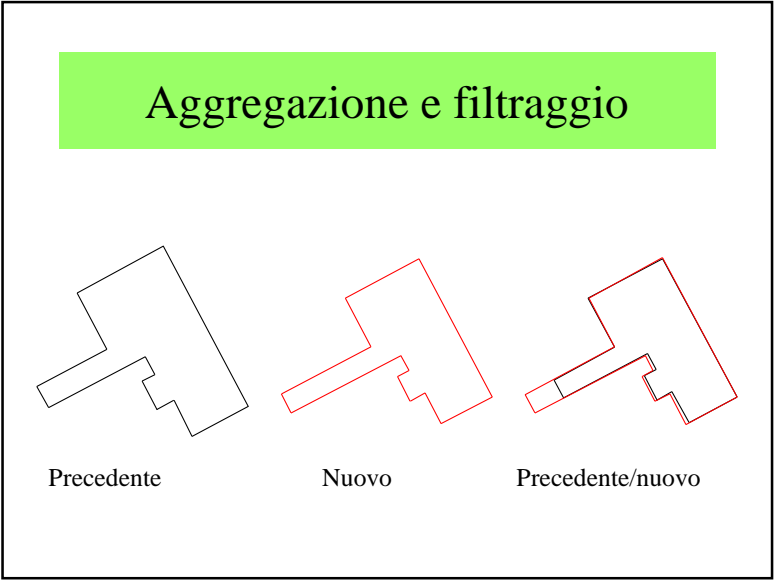
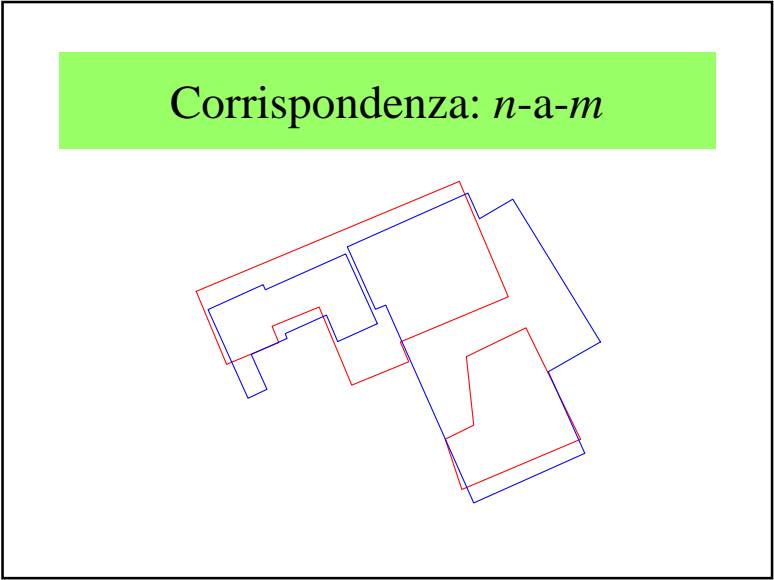
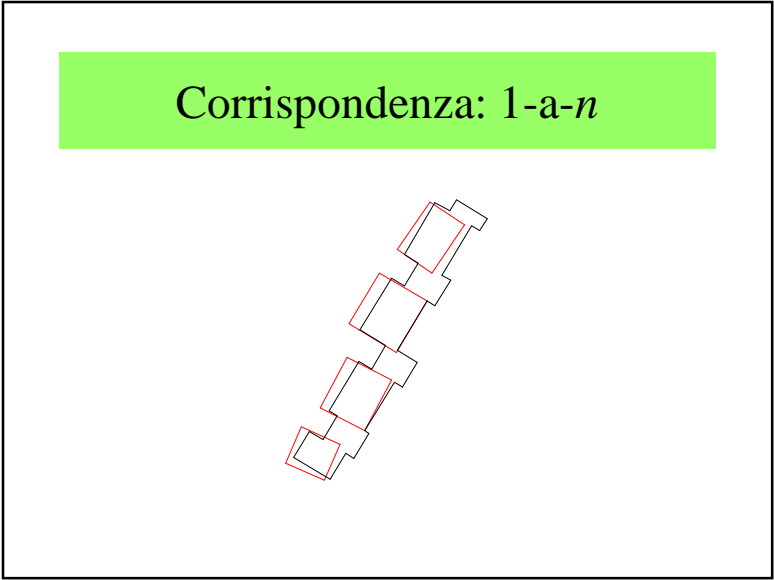
Aggiornamento globale con foto aeree

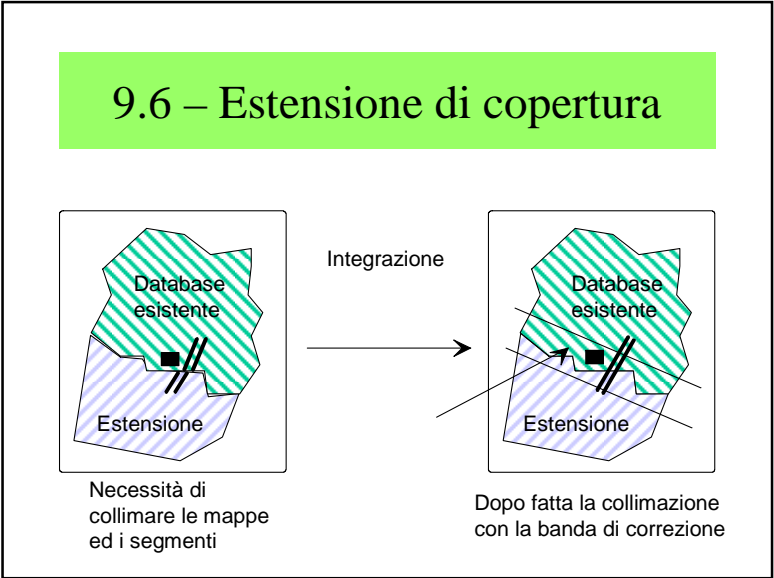
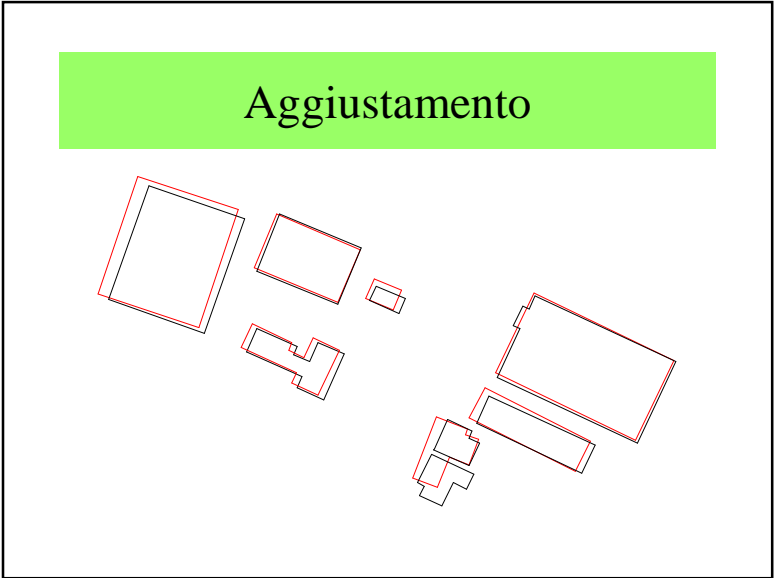
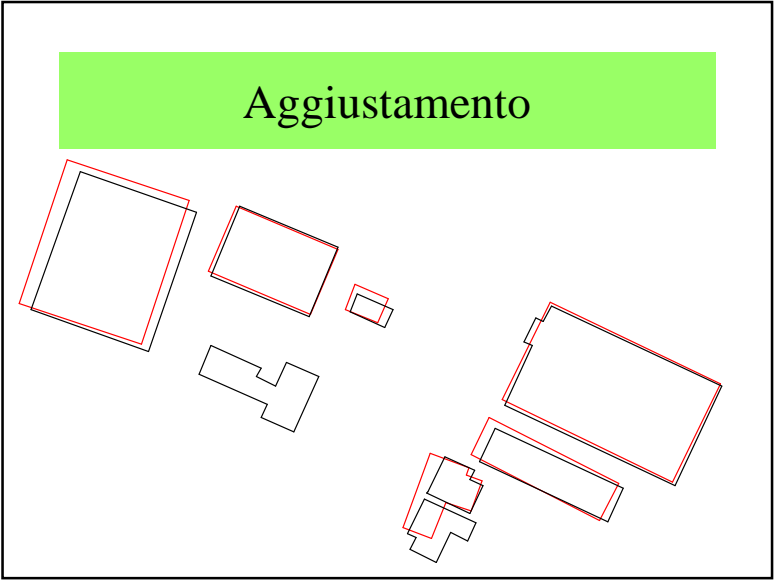
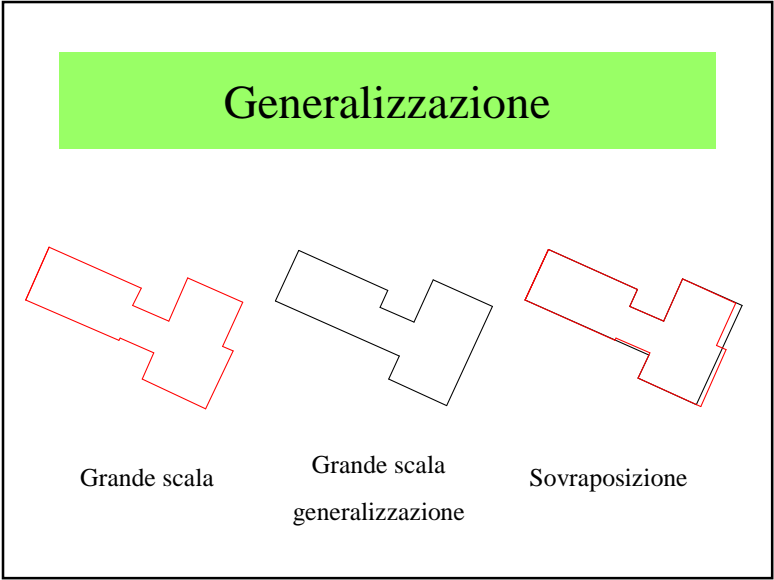
- Foto aeree ogni due anni
- Aggiornamento del database urbano
- Pixel = 8 cm × 8 cm
- Ragionamento con modello a priori



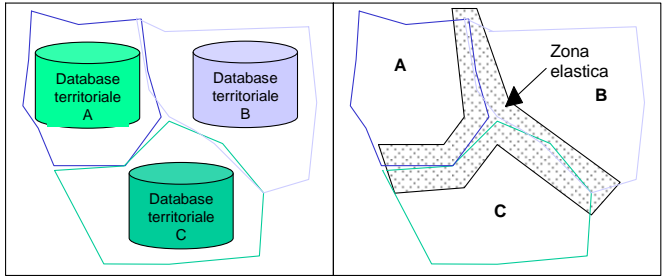




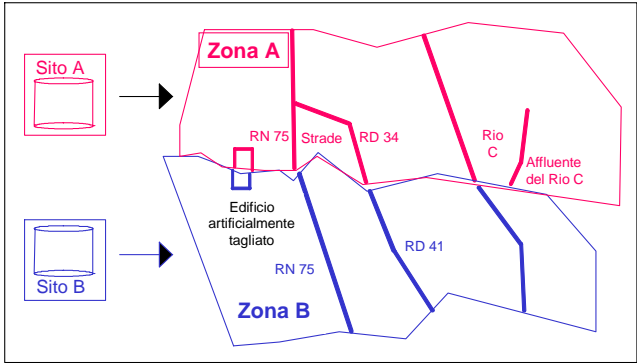




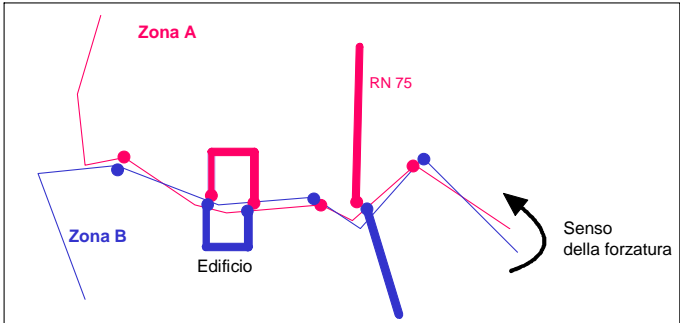
Matching confini



Continuità semantica e topologica



Forzatura



2.7 – Conclusioni

- Ciclo di vita di un database
- Importantissimo
- Costo 10 – 15 % ogni anno