DATA INTEROPERABILITY

Department of Emergency Services
ESCAD PROJECT
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Spatial Information Services
Five Years Ago

- Team consisted of a Manager and four GIS Operators
- Mapping Application for Communication Centers (MACC)
- Corporate Dataset
- Maintained two datasets
- Mapping
- Spatial Analysis

Today

- Mapping Application for Communication Centers (MACC)
- Right CAD, Premier CAD, ESCAD, two Web Based Mapping Applications
- Corporate Dataset
- Maintain twelve datasets
- Mapping
- Spatial Analysis

*Oracle Spatial*
What does Oracle offer to Data Interoperability?

- Data format open to GIS vendors
- Data available to multiple GIS applications
- Networked Databases
- Interoperability between datasets
Emergency Services
Computer Aided Dispatch System

Replaces

• Premier CAD
• Right CAD
• Fire CAD
ESCAD Work Load

Queensland Ambulance Service

- Cases for the 04/05 period: 688,073
- Total Code 1: 210,769

Queensland Fire and Rescue Service

- Cases for the 04/05 period: 59,715
ESCAD Datasets

- Road Network
- Feature Points or Premises
- Roundabouts
SELECT
QR.STREET,
QR.FROMLEFT AS "FROMLEFT",
QR.FROMRIGHT AS "FROMRIGHT",
QR.TOLEFT AS "TOLEFT",
qr.TORIGHT AS "TORIGHT",
RPAD(Localityleft(qr.MI_PRINX),50) AS "CITY_LEFT",  -- uses a function
RPAD(Localityright(qr.mi_prinx),50) AS "CITY_RIGHT",  -- uses a function
RPAD(Lgaleft(qr.mi_prinx),50) AS "LGA_LEFT",  -- uses a function
RPAD(Lgaright(qr.mi_prinx),50) AS "LGA_RIGHT",  -- uses a function
QR.STATE,
Roadtype AS "ROAD_TYPE",
ersis_ufi AS "ROAD_UFI",
post_code AS "POSTCODE_L",
post_code AS "POSTCODE_R",
qr.STREET_ALIAS AS "ALIAS_NAME",
qr.ONEWAYIND AS "ONE_WAY",
qr.SPLITSTREET AS "SPLIT_ST",
TO_NUMBER(Urbanlevy(QR.MI_PRINX),999) AS "URBAN",  -- uses a function
qr.mi_prinx,
qr.GEOLOC
FROM QLD_RD qr
CURSOR c_qldlocality IS SELECT locality FROM QLD_LOCALITY l WHERE
  SDO_FILTER(l.geoloc,V_point) = 'TRUE' AND
  mdsys.sdo_relate(l.geoloc,V_point,'mask=ANYINTERACT querytype=WINDOW') = 'TRUE';
BEGIN
  SELECT GEOLOC INTO V_GEOLOC FROM QLD_RD WHERE MI_PRINX = v_miprix;
  v_x1 := v_geoloc.sdo_ordinates(1);
  v_y1 := v_geoloc.sdo_ordinates(2);
  v_x2 := v_geoloc.sdo_ordinates(3);
  v_y2 := v_geoloc.sdo_ordinates(4);
  --do left locality
  v_offset := 0.0004;
  v_x3 := (v_x1 + v_x2)/2 - v_offset*(v_y2 - v_y1)/ SQRT((v_x2 - v_x1)*(v_x2 - v_x1) + (v_y2 - v_y1)*(v_y2-v_y1));
  v_y3 := (v_y1 + v_y2)/2 + v_offset*(v_x2 - v_x1)/ SQRT((v_x2 - v_x1)*(v_x2 - v_x1) + (v_y2 - v_y1)*(v_y2-v_y1));
  v_point := mdsys.sdo_geometry(2001,8311,MDSYS.SDO_POINT_TYPE(v_x3,v_y3, NULL), NULL, NULL);
  OPEN c_qldlocality;
  FETCH c_qldlocality INTO tmpVar;
  IF c_qldlocality%NOTFOUND THEN
    tmpVar := ' ';
  END IF;
  CLOSE c_qldlocality;
RETURN tmpVar;
END Localityleft;

LOCALITY_LEFT FUNCTION
SELECT 
  t.x, 
  t.y, 
  mdsys.sdo_geometry(2001,8311,MDSYS.SDO_POINT_TYPE(ROUND(t.x,6),ROUND(t.y,6), 
  NULL), NULL, NULL) AS "GEOLOC", 
  qr.street, 
  R.ersis_ufi 
FROM QLD_RD qr, QLD_RD R 
  ,TABLE(SDO_UTIL.GETVERTICES((SDO_GEOM.SDO_INTERSECTION(QR.GEOLOC,R.GEOLOC, 0.005)))) t 
WHERE  t.x > 0 AND qr.roadTYPE < 7 
  AND r.roadTYPE < 7 
  AND R.ersis_ufi <> QR.ersis_ufi 
  AND R.STREET <> QR.STREET 
  AND SDO_RELATE(QR.GEOLOC,R.GEOLOC,'MASK=ANYINTERACT') = 'TRUE';
SELECT RPAD (ap.FEATURE,70) AS "FEATURE",
ap.ADDRESS AS "ADDRESS",
g.LOCALITY AS "CITY_ID",  -- from locality layer
ap.GIPS_CLASS_CODE AS "GIPS_CLASS",
NVL(g.LGA_NAME,'NSW') AS "LGA",  -- from locality layer
ap.PHONE AS "PHONE",
q.ROAD_UFI AS "ROAD_UFI",  -- derived from the closest road segment
Cross_Street(Q.ROAD_UFI ||','||ap.feature) AS "CROSS_STREET",  -- uses cross street function
ap.prop_id AS "LOTPLAN",
ap.feat_level AS "FEAT_LEVEL",
ap.geoloc.sdo_point.x AS "LON",
ap.geoloc.sdo_point.y AS "LAT",
ap.GEOLOC
FROM ALL_PNT ap, ICAD_QLD_RD_MV q, ESCAD_LOCALITY_MV g
WHERE AP.GEO_QUAL_CODE IN ('A','B') AND AP.FEAT_LEVEL IN ('P','S') AND q.ROAD_TYPE < 6 AND
sdo_nn(q.geoloc, ap.geoloc, 'sdo_num_res=1 unit=meter',1) = 'TRUE'
AND sdo_filter(g.geoloc,ap.geoloc)='TRUE' AND MDSYS.SDO_RELATE(g.geoloc, ap.geoloc,'mask=ANYINTERACT querytype=WINDOW')= 'TRUE'
CURSOR c_name
IS SELECT L.street
FROM ESCAD_ALL_INTERSECTIONS_MV l,ALL_PNT Q
WHERE Q.FEATURE LIKE v_feature AND L.ersis_UFI LIKE V_ERSIS_UFI AND
l.street NOT IN ('ROUNDABOUT','OFF RAMP','ON RAMP','STREET','LANE','ROAD') AND sdo_nn(L.geoloc, Q.geoloc, 'sdo_num_res=1 unit=meter') = 'TRUE';

CURSOR c_next_name
IS SELECT L.street,sdo_nn_distance(1) "distance"
FROM ESCAD_ALL_INTERSECTIONS_MV l,ALL_PNT Q
WHERE Q.FEATURE LIKE v_feature AND L.ersis_UFI LIKE V_ERSIS_UFI AND l.street NOT IN ('ROUNDABOUT','OFF RAMP','ON RAMP','STREET','LANE','ROAD') AND sdo_nn(L.geoloc, Q.geoloc, 'sdo_num_res=100 unit=meter',1) = 'TRUE' ORDER BY "distance" ASC;

CURSOR c_close_name
IS SELECT L.street,sdo_nn_distance(1) "distance" FROM ESCAD_ALL_INTERSECTIONS_MV l,ALL_PNT Q
WHERE Q.FEATURE LIKE v_feature AND L.ersis_UFI LIKE V_ERSIS_UFI AND l.street NOT IN ('ROUNDABOUT','OFF RAMP','ON RAMP','STREET','LANE','ROAD') AND sdo_nn(L.geoloc, Q.geoloc, 'sdo_num_res=1000 unit=meter',1) = 'TRUE' ORDER BY "distance" ASC;

BEGIN
SELECT STREET INTO V_STREET_NAME FROM QLD_RD R WHERE R.ERSIS_UFI = V_ERSIS_UFI AND ROWNUM = 1;
OPEN c_NAME;
FETCH c_NAME INTO tmpVar;
CLOSE c_NAME;
IF tmpVar IS NULL OR tmpVar LIKE ' ' THEN
OPEN c_next_name;
FETCH c_next_name INTO tmpVar,v_distance;
CLOSE c_next_name;
END IF;
IF tmpVar IS NULL OR tmpVar LIKE ' ' THEN
OPEN c_close_name;
FETCH c_close_name INTO tmpVar,v_distance;
CLOSE c_close_name;
END IF;
RETURN tmpVar;
END Cross_Street;
SELECT DISTINCT
ROUND(t.x,6),
ROUND(t.Y,6)
FROM ICAD_QLD_RD_MV qr, ICAD_QLD_RD_MV R
, TABLE(SDO_UTIL.GETVERTICES((SDO_GEOM.SDO_INTERSECTION(QR.GEOLOC,R.GEOLOC,
0.005)))) t
WHERE qr.ROAD_TYPE = 9
AND r.ROAD_TYPE = 9
AND R.ROAD_UFI <> QR.ROAD_UFI
AND R.STREET <> QR.STREET
AND SDO_RELATE(QR.GEOLOC,R.GEOLOC,'MASK=ANYINTERACT') = 'TRUE';
What was all that about?

- Flexibility
- Highlighting Interoperability between Datasets
- Interoperability between Oracle Data Formats
- Interoperability between Oracle Functionality
- Performed entirely on the Database
- Automated
- Data updated on one table flows through too many others
Thankyou